Patricia M. French
Senior Attorney

NiSource Corporate Services

300 Friberg Parkway
Westborough, Massachusetts 01581
(508) 836-7394
(508) 836-7039 (facsimile)
pfrench@nisource.com

June 27, 2005

BY OVERNIGHT DELIVERY AND E-FILE

Mary L. Cottrell, Secretary
Department of Telecommunications and Energy
One South Station
Boston, MA 02110

Re: Bay State Gas Company, D.T.E. 05-27

Dear Ms. Cottrell:

Enclosed for filing, on behalf of Bay State Gas Company ("Bay State"), please find Bay State's responses to the following information requests:

From the Attorney General:

AG-8-13 AG-9-20 AG-12-15 AG-12-17

AG-14-31 AG-19-32 AG-19-37 AG-21-15 AG-22-53

From the Department:

DTE-1-8 DTE-5-16 BULK DTE-5-31 DTE-5-32

DTE-11-37 DTE-15-4 DTE-15-27

From the MA Oil Heat Council:

MOC-1-2 MOC-1-7 MOC-1-16 MOC-4-3 MOC-4-4

MOC-4-7 MOC-4-8

From the USWA:

USWA-2-11 USWA-2-18 USWA-2-24

From the UWUA Local 273:

UWUA-1-9 UWUA-1-12 UWUA-2-13 UWUA-3-29

Please do not hesitate to telephone me with any questions whatsoever.

Very truly yours,

Patricia M. French

cc: Per Ground Rules Memorandum issued June 13, 2005:

Paul E. Osborne, Assistant Director – Rates and Rev. Requirements Div. (1 copy)
A. John Sullivan, Rates and Rev. Requirements Div. (4 copies)
Andreas Thanos, Assistant Director, Gas Division (1 copy)
Alexander Cochis, Assistant Attorney General (4 copies)
Service List (1 electronic copy)

COMMONWEALTH OF MASSACHUSETTS
DEPARTMENT OF TELECOMMUNICATIONS AND ENERGY

RESPONSE OF BAY STATE GAS COMPANY TO THE
EIGHTH SET OF INFORMATION REQUESTS FROM THE ATTORNEY GENERAL
D. T. E. 05-27

Date: June 27, 2005

Responsible: Earl M. Robinson

AG-8-13 Net Salvage - If an item of plant is retired with a replacement addition occurring and an outside party provides $1,000 associated with the replacement, how is the $1,000 accounted for (e.g., $1,000 gross salvage, $1,000 reduction to the replacement addition cost, a 50/50 split of the $1,000, etc.)? Further, please provide full justification for whatever methodology is employed. In addition, identify when the Company first implemented such policy.

Response: If the item of plant is a gas main or service, then the $1,000 is considered a contribution in aid of construction and a reduction to the replacement addition cost. If the item of plant being replaced is equipment such as a vehicle, office equipment, etc, then the total cost of the replacement item is an addition to plant. The $1,000 is considered salvage and charged to the reserve salvage account. The old item being replaced is retired at the original book cost and treated as a normal retirement.

The Company has been netting contributions in aid of construction against additions going back to the seventies per order from the DTE. Prior to the order account 252 was used. Salvage received for equipment accounts related to trade-ins has been in place for years. Page 10 of the Company's 1989 policy book (i.e., Capitalization and Expense Policy Guide For Bay State Gas Company, Northern Utilities, and Granite State Gas Transmission, 2nd Edition, November 1989) includes the documentation specifying this accounting treatment.

COMMONWEALTH OF MASSACHUSETTS
DEPARTMENT OF TELECOMMUNICATIONS AND ENERGY

RESPONSE OF BAY STATE GAS COMPANY TO THE
NINTH SET OF INFORMATION REQUESTS FROM THE ATTORNEY GENERAL
D. T. E. 05-27

Date: June 27, 2005

Responsible: Joseph A. Ferro

AG-9-20 Refer to Exhibit BSG/JAF-2, p. 3-284, lines 20-25. Please explain how the Company proposes to calculate the therm adjustment for energy efficiency programs. Include an example using energy efficiency programs implemented during the test year.

Response: From the DSM data base, the annual therm savings from all measures installed in the previous calendar year are extracted by customer. Heat measures are distributed to months based on EDDs (see no. 1 below). Non-heat measures are distributed 1/12 for each month. Customer's usage during the previous year is normalized and split between the head and tail rate block on a month-by-month basis (see step nos. 2 & 3 below). Volume savings are subtracted from or added to the previous year's normalized monthly usage and again split between the rate blocks on a month by month basis for the twelve months of the prior (2004) year (see step no. 4 below). The difference between usage before and after the energy efficiency savings, by rate block, is accumulated by customer, by each rate class (see step no. 5 below). The percentage of the cumulative therm savings to the prior year billing determinants, by head and tail block, is then used as an adjustment to the prior year billing determinants (see step no. 6 below).

For example:

DSM Database shows an annual savings of 88.0 Therms for customer account no. 121773004 installed on March 22, 2004. The account is classified as Residential Heat.

1) The 88 therms are spread by month based on EDDs and results in the following savings by month:

January	19.4 therms	July	0.0 therms
February	16.5 therms	August	0.0 therms
March	14.1 therms	September	0.4 therms
April	7.5 therms	October	3.6 therms
May	2.3 therms	November	8.6 therms
June	0.5 therms	December	15.2 therms

2) The customer's actual total monthly usage during 2004 and usage by head and tail block is provided in the following table. The shaded months are months that represent usage after the measure was installed:

Month	Total Usage (Therms)	Head Block (Therms)	Tail Block (Therms)
January	190.0	90.0	100.0
February	284.0	90.0	194.0
March	184.0	90.0	94.0
April	154.0	90.0	64.0
May	59.0	30.0	29.0
June	36.0	30.0	6.0
July	29.0	29.0	0.0
August	25.0	25.0	0.0
September	24.0	24.0	0.0
October	30.0	30.0	0.0
November	57.0	57.0	0.0
December	132.0	90.0	42.0

3) Actual monthly Usage per Rate Block *without any savings from the installed measures* is determined by adding the savings represented in number one above for the monthly usage in number two for those months after the measure was installed, i.e. April through December.

Month	Head Block (Therms)	Tail Block (Therms)
January	90.0	100.0
February	90.0	194.0
March	90.0	94.0
April	90.0	64.0 + 7.5 = 71.5
May	30.0	29.0 + 2.3 = 31.3
June	30.0	6.0 + 0.5 = 6.5
July	29.0	0.0
August	25.0	0.0
September	24.0 + 0.4 = 24.0	0.0
October	30.0	0.0 + 3.6 = 3.6
November	57.0 + 8.6 = 65.6	0.0
December	90.0	42.0 + 15.2 = 57.2

4) Actual monthly Usage per Rate Block *with savings from the installed measures* determined by subtracting the savings represented in

number one above for the monthly usage in number two for those months before the measure was installed, i.e. January through March.

Month	Head Block (Therms)	Tail Block (Therms)
January	90.0	100.0 – 19.4 = 80.6
February	90.0	194.0 – 16.5 = 177.5
March	90.0	94.0 – 14.1 = 79.9
April	90.0	64.0
May	30.0	29.0
June	30.0	6.0
July	29.0	0.0
August	25.0	0.0
September	24.0	0.0
October	30.0	0.0
November	57.0	0.0
December	90.0	42.0

5) The difference in monthly Usage per Rate Block attributable to the installed measures is determined by subtracting the values indicated in step 4) from the values indicated in step 3) above and is shown below.

Month	Head Block (Therms)	Tail Block (Therms)
January	0.0	19.4
February	0.0	16.5
March	0.0	14.1
April	0.0	7.5
May	0.0	2.3
June	0.0	0.5
July	0.0	0.0
August	0.0	0.0
September	0.4	0.0
October	0.0	3.6
November	8.6	0.0
December	0.0	15.2

6) The cumulative Peak and Off-peak period therm savings by rate block for this one customer is determined first, by accumulating the Peak Period and Off-peak Period therm savings by block shown in the above table resulting as follows:

Period	Head Block (Therms)	Tail Block (Therms)
Peak	8.6	72.7
Off-peak	0.4	6.4

Then, assuming that this one measure was the only one installed in 2004 and that the Prior Year normalized therm billing determinants for the Residential Heating class were 1000 therms for the Peak Period head (and tail) block, and 400 therms for the Off-peak Period tail (and head) block, the percentage adjustment to the billing determinants for the Residential Heating class would be as follows:

Period	Head Block (Therms)	Tail Block (Therms)
Peak	1000/(1000-8.6) –1 = 0.87%	1000/(1000-72.7) – 1 = 7.84%
Off-peak	400/(400-0.4) –1 = 0.10%	400/(400-6.4) – 1 = 1.63%

Although the above percentage is the last step, as it is used to adjust rates, the implied adjusted billing determinants, if they were used to derive rates by dividing volumes into costs / revenue requirement are as follows:

Period	Head Block (Therms)	Tail Block (Therms)
Peak	1000 – (1000 x 0.87%) = 991.4	1000 – (1000 x 7.84%) = 927.3
Off-peak	400 – (400 x 0.10%) = 399.6	400 – (400 x 1.63%) = 393.6

The above example (up to the percentage derivation) follows the Energy Efficiency Adjustment percentage formula set out in Section 8.3 of the Company's proposed Annual Base Rate Adjustment (ABRAM) tariff, which has been filed as Schedule JAF-2-8. Schedule JAF-2-9 shows, as part of the base rate adjustment, the application of the percentage to the base rate elements.

Please realize that, according to the Company's proposal, the first year of energy efficiency savings that will be reflected in an annual base rate adjustment will be for 2005, for the base rate adjustment effective November 1, 2006. Also, realize that for C&I therm savings, if the Company's flat rate design proposal is accepted, steps 2 – 5 of the above calculation will not be needed since the impact to head/tail blocks is not applicable. Instead, in step 6, (after identifying the annual therm savings for each account and distributing by month and aggregating by season and by rate class) the resulting therms will be the basis for the adjustment percentage to rates. That is, the percentage for each class, by season, will be: [BD / (BD – EE)] – 1; and the implied adjusted therm billing determinants are BD – (BD x [BD / (BD – EE)] – 1).

COMMONWEALTH OF MASSACHUSETTS
DEPARTMENT OF TELECOMMUNICATIONS AND ENERGY

RESPONSE OF BAY STATE GAS COMPANY TO THE
TWELFTH SET OF INFORMATION REQUESTS FROM THE ATTORNEY GENERAL
D. T. E. 05-27

Date: June 27, 2005

Responsible: Steven A. Barkauskas, Vice President Total Rewards

AG-12-15 Referring to Exhibit BSG/SAB-1, page 24, lines 15-19, please provide the workpapers, calculations, formulas, assumptions and supporting documentation for the 3.6 percent "aging factor used by Mr. Barkauskas.

Response: The 3.6% aging factor is based on an average of the 2004 projected salary increase budgets reported in the Hewitt and World at Work 2003/2004 salary increase surveys for exempt employees and using utility industry data. The Company believes that this figure represents a reasonable proxy for 2004 wage increases.

COMMONWEALTH OF MASSACHUSETTS
DEPARTMENT OF TELECOMMUNICATIONS AND ENERGY

RESPONSE OF BAY STATE GAS COMPANY TO THE
TWELFTH SET OF INFORMATION REQUESTS FROM THE ATTORNEY GENERAL
D. T. E. 05-27

Date: June 27, 2005

Responsible: Steven A. Barkauskas, Vice President Total Rewards

AG-12-17 Referring to Exhibit BSG/SAB-1, page 25, lines 1-10, please provide a comparison of the union rates as of April 2003 for both the Northeast Utilities and the Company, without any "aging" in the form of Schedule SAB-1.

Response: Attachment AG-12-17 shows the wage comparison data from Schedule SAB-1 after removing the aging factors that were applied to the survey data in Bay State's initial filing. As is the case with my responses to AG-12-37, AG-12-39 and AG-12-41, the data does not show a direct comparison as the survey data is from April 2003, while the Company data is from July 2004.

Bay State Gas Company

Union Salary Survey for Utilities in the Northeastern U.S.

Comparison of Bay State Union Hourly Rates & Bonuses Paid to Utilities in the Northeast

		Bay State 1/			Northeast Utilities 2/		
Survey Title	**#Incumbents**	**Average Hourly Rate Per Hour**	**Average Actual Bonus Paid**	**Average Hourly Rate Per Hour Incl. Bonus**	**Average Hourly Rate Per Hour***	**Average Actual Bonus Paid**	**Average Hourly Rate Per Hour Incl. Bonus**
CAD Draftsperson - Top	5	$27.38	$2,181	$28.43	$27.35	$3,952	$29.25
Phone Customer Service Representative - Top	8	$21.68	$1,121	$22.22	$24.85	$832	$25.25
Collector - Top	5	$23.46	$1,344	$24.11	$19.06	$2,080	$20.06
Meter Reader - Top	1	$28.16	$1,806	$29.03	$23.11	$1,040	$23.61
Distribution Crewleader - Top	29	$27.71	$2,004	$28.67	$29.04	$1,456	$29.74
Equipment Operator Top	9	$27.13	$1,957	$28.07	$23.19	$1,248	$23.79
Welder - Top	9	$29.25	$2,390	$30.40	$25.88	$2,912	$27.28
Mechanic - Top	8	$28.68	$2,241	$29.76	$24.19	$0	$24.19
Overall Average	**74**	**$26.68**	**$1,881**	**$27.59**	**$24.58**	**$1,690**	**$25.40**
% Above/(Below)		**8.5%**	**11.3%**	**8.6%**			

Notes:

1/ Bay State data effective July 7, 2004.

2/ Northeast Utility data amounts shown are from American Gas Association (AGA) 2003 Survey.
Includes companies from the following states--Connecticut, Maine, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, and Vermont. Data is not available specific to a state.

* Reflects the median or 50th percentile of the market.

COMMONWEALTH OF MASSACHUSETTS
DEPARTMENT OF TELECOMMUNICATIONS AND ENERGY

RESPONSE OF BAY STATE GAS COMPANY TO THE
FOURTEENTH SET OF INFORMATION REQUESTS FROM THE ATTORNEY GENERAL
D. T. E. 05-27

Date: June 27, 2005

Responsible: Danny G. Cote, General Manager

AG-14-31 Refer to the Company's response to AG-2-16(a), p. 28 of 34. Does the BSG leak detection system consider changes in corrosion rates as indicated by pipe sample testing? If "yes", explain how in complete detail.

Response: No, the BSG leak detection system does not employ pipe sample testing as part of its leak detection process. BSG performs regular system surveys to identify and categorize the severity of all leaks. Bay State's surveys exceed both regulatory requirements and typical industry practice and have allowed it to maintain and operate an effective and efficient system.

COMMONWEALTH OF MASSACHUSETTS
DEPARTMENT OF TELECOMMUNICATIONS AND ENERGY

RESPONSE OF BAY STATE GAS COMPANY TO THE
NINETEENTH SET OF INFORMATION REQUESTS FROM THE ATTORNEY GENERAL
D. T. E. 05-27

Date: June 27, 2005

Responsible: John E. Skirtich. Consultant (Revenue Requirements)

AG-19-32 Referring to the Company's response to Information Request AG-1-63(B), pages 7-8, please provide a complete and detailed description of the nature of the claims and / or liabilities associated with the following Debits to the Accrual Insurance – General Liability:

(1) June 2001 $363,225
(2) December 2001 $170,000
(3) December 2001 $170,197

Response:

(1) This Entry represents an insurance Premium Accrual adjustment booked to Account 925-7 Insurance General Liability Primary.

(2) The adjustment to expense reflects a reduction in prior period self-insurance reserves. In years prior to 2001, Bay State chose to utilize self-insurance or very high deductible insurance policies. As the likelihood of claims being filed against those time periods declined, the self-insurance reserve balances needed to be adjusted downward to reflect a more representative liability.

(3) This Entry represents a correction to self-insurance reserves.

COMMONWEALTH OF MASSACHUSETTS
DEPARTMENT OF TELECOMMUNICATIONS AND ENERGY

RESPONSE OF BAY STATE GAS COMPANY TO THE
NINETEENTH SET OF INFORMATION REQUESTS FROM THE ATTORNEY GENERAL
D. T. E. 05-27

Date: June 27, 2005

Responsible: John E. Skirtich, Consultant (Revenue Requirements)

AG-19-37 Referring to the Company's response to Information Request AG-1-94, please indicate the dollar amount of political contributions made by NiSource and / or any of its affiliates that were allocated to Bay State Gas Company during the test year in this case.

Response: No political contributions were allocated to Bay State Gas Company.

COMMONWEALTH OF MASSACHUSETTS
DEPARTMENT OF TELECOMMUNICATIONS AND ENERGY

RESPONSE OF BAY STATE GAS COMPANY TO THE
TWENTY FIRST SET OF INFORMATION REQUESTS FROM THE ATTORNEY GENERAL
D. T. E. 05-27

Date: June 27, 2005

Responsible: Stephen H. Bryant, President

AG-21-15 Refer to AG-3-32(b), p. 27. Identify by year the number and percentage of devices that failed due to initial problems identified on this page.

Response: The Company did not maintain information separately for units that failed due to initial problems as described at p. 27 of AG-3-32 (b). The Company only maintained data related to initial problems plus problems, such as telephone connection problems, that occurred within six months of installation, such as problems described in the ”Installation Technology” section. There is no way to distinguish initial problems from problems that occurred up to six months after installation.

COMMONWEALTH OF MASSACHUSETTS
DEPARTMENT OF TELECOMMUNICATIONS AND ENERGY

RESPONSE OF BAY STATE GAS COMPANY TO THE
FIFTEENTH SET OF INFORMATION REQUESTS FROM THE D.T.E.
A.G.-22-53

Date: June 27, 2005

Responsible: Stephen H. Bryant, President

AG-22-53 Please indicate under what circumstance, if any, the Company takes messages from customers (via voicemail or otherwise) at the call center. Describe how the messages are recorded in terms of service quality guidelines.

Response: Messages for return calls are taken in the Contact Center on the Billing Inquiry queue only when we are experiencing a very high volume of meter, service and emergency calls. All messages are returned after 5PM on the same day or by the next morning. The customer is informed of when to expect the return call. The number of instances this practice has been implemented in the past year and the total number of messages taken has been minimal in terms of total calls handled by the Contact Center.

The service levels of all calls answered in the Contact Center are included in the Company's service quality results for call answering performance.

COMMONWEALTH OF MASSACHUSETTS
DEPARTMENT OF TELECOMMUNICATIONS AND ENERGY

RESPONSE OF BAY STATE GAS COMPANY TO THE
FIRST SET OF INFORMATION REQUESTS FROM THE D.T.E.
D. T. E. 05-27

Date: June 27, 2005

Responsible: John E. Skirtich, Consultant (Revenue Requirements)

DTE 1-8 Refer to Exh. BSG/JES-1, Sch. JES-11, ln.11. Has the $373,740 amortization of investment credit amount been adjusted to reflect the proposed revisions to the book depreciation useful lives? If the response is negative, please provide the necessary revisions.

Response: No revision has been made to ITC amortization. The company only has $1,865,547 of deferred ITC as of December 31, 2004.

The amount included in amortization is based off the 1992 rate case, which included a composite depreciable life of 25.2 years.

COMMONWEALTH OF MASSACHUSETTS
DEPARTMENT OF TELECOMMUNICATIONS AND ENERGY

RESPONSE OF BAY STATE GAS COMPANY TO THE
FIFTH SET OF INFORMATION REQUESTS FROM THE D.T.E.
D. T. E. 05-27

Date: June 27, 2005

Responsible: Stephen H. Bryant, President

BULK ATTACHMENT

DTE-5-16 Please provide all correspondence between Itron and Bay State, or any of its affiliates since 1992.

Response: Attachment DTE-5-16 is all of the correspondence between Itron and Bay State that Bay State has in its possession. Bay State also has in its possession a variety of technical materials related to Itron equipment that can be provided upon request.

COMMONWEALTH OF MASSACHUSETTS
DEPARTMENT OF TELECOMMUNICATIONS AND ENERGY

RESPONSE OF BAY STATE GAS COMPANY TO THE
FIFTH SET OF INFORMATION REQUESTS FROM THE D.T.E.
D. T. E. 05-27

Date: June 27, 2005

Responsible: Stephen H. Bryant, President

DTE-5-31 Refer to Exh. BSG/SHB-1, at 58, ln. 3-7. Of the $17.3 million that the service business grossed in the test year, how much of that total is included above the line and how much is below the line?

Response: $14.53 million is above the line and $2.76 is below the line.

COMMONWEALTH OF MASSACHUSETTS
DEPARTMENT OF TELECOMMUNICATIONS AND ENERGY

RESPONSE OF BAY STATE GAS COMPANY TO THE
FIFTH SET OF INFORMATION REQUESTS FROM THE D.T.E.
D. T. E. 05-27

Date: June 27, 2005

Responsible: Stephen H. Bryant, President

DTE-5-32 Refer to Exh. BSG/JES-1, at 9, ln. 9-13. Please provide the 2004 per books results, both above the line and below the line, for the Company's integrated energy product and services ("EP&S") group. In addition, please provide this information for each of the programs offered through EP&S: Guardian Care Business Service; Water Heater Rental Business; Boiler and Furnace Sales and Installation Business; Annual Inspections; and Fee for Service.

Response: The following are booked revenues for the EP&S group of activities:

($000)

Above the Line:		
Fee For Service	$1,225.4	
Annual Inspections	863.5	
Guardian Care	5,613.8	
Rental Water Heaters	4,859.2	
Rental Conversion Burners	1,965.2	
Total Above the Line Revenues		$14,527.1
Below the Line:		
Furnace & Boiler Installations	$2,309.8	
Other Installations	453.2	
Total Below the Line Revenues		2,763.0
Total EP&S Revenues		$17,290.1

COMMONWEALTH OF MASSACHUSETTS
DEPARTMENT OF TELECOMMUNICATIONS AND ENERGY

RESPONSE OF BAY STATE GAS COMPANY TO THE
ELEVENTH SET OF INFORMATION REQUESTS FROM THE D.T.E.
D. T. E. 05-27

Date: June 27, 2005

Responsible: Steven A. Barkauskas, Vice President Total Rewards

DTE-11-37 Please itemize and quantify for each management employee and officer the compensation and benefits, including bonuses, paid during the test year.

Response: Please see the Company's response to AG 1-36.

COMMONWEALTH OF MASSACHUSETTS
DEPARTMENT OF TELECOMMUNICATIONS AND ENERGY

RESPONSE OF BAY STATE GAS COMPANY TO THE
FIFTEENTH SET OF INFORMATION REQUESTS FROM THE D.T.E.
D. T. E. 05-27

Date: June 27, 2005

Responsible: Joseph A. Ferro

DTE-15-4 Please indicate what results from the Marginal Cost Study ("MCS") are being used in the Company's rate design process.

Response: The Company assessed the seasonal unit marginal costs in deciding on the setting of tail (or second) block rates of all rate classes. The Company used the unit marginal cost to initially set the second block rate for the residential classes, by setting a ratio of 1.8 and 2.3 to the unit marginal costs of the heating and non-heating classes, respectively. After balancing the rate design goals, in particular rate continuity (bill impacts), fairness, efficiency and earnings stability, the Company's proposed Residential Heating and Non-heating second block per-therm rates of $0.2224 and $0.1928 were reasonably close to its initially set rates of $0.2081 and $0.1499, respectively.

Since volumetric flat rates for the C&I classes offered an opportunity to greatly simplify the rate structure, while also achieving rate continuity (bill impacts), fairness and earnings stability, the Company did not establish a second block rate, and thus did not use the unit marginal cost to set such a rate.

COMMONWEALTH OF MASSACHUSETTS
DEPARTMENT OF TELECOMMUNICATIONS AND ENERGY

RESPONSE OF BAY STATE GAS COMPANY TO THE
FIFTEENTH SET OF INFORMATION REQUESTS FROM THE D.T.E.
D. T. E. 05-27

Date: June 27, 2005

Responsible: Lawrence R. Kaufmann, Consultant (PBR)

DTE-15-27 Refer to the Company's response to the Department's information request DTE4-55. Please:

(a) discuss how the "system age" proxy "satisfies this condition", and how the Company has "controlled, to the greatest practical extent, for mergers and acquisitions over the sample period";
(b) provide any published articles or book chapters that discuss the effect of including a poor proxy variable on the parameter estimates in a regression model.

Response:

(a) A merger or acquisition would affect the measured system age proxy only if it affected a given distributor's reported number of customers served. We have excluded from the sample any observations where a company underwent a significant merger and it affected its reported customer numbers. An example is the 2002 and 2003 data for Providence Gas, which includes data for the acquired Valley Gas (also based in Rhode Island) and therefore is not comparable with earlier years. However, mergers that do not affect reported data are not excluded from the sample.

(b) I am not aware of any published articles or book chapters that explicitly discuss this topic. However, one recently published article does use this same system age proxy in a benchmarking evaluation of US power distributors. This article is titled "Econometric Benchmarking of Cost Performance: The Case of US Power Distributors," and was written by my colleagues Mark Lowry, Lullit Getachew and David Hovde of Pacific Economics Group. This article appeared in the June 2005 issue of the peer-reviewed and respected *Energy Journal*. A copy of this article is included as Attachment DTE-15-27.

Econometric Benchmarking of Cost Performance: The Case of U.S. Power Distributors

Mark Newton Lowry[*], *Lullit Getachew*[**], *and David Hovde*[**]

Benchmarking of cost efficiency has growing use in energy utility regulation. The state of the art has been limited in many countries by the small size of available national data sets and poor data on capital cost. Data available in the United States place fewer constraints on benchmarking methods. This paper develops an econometric cost benchmarking model for power distribution that is based on U.S. data. The model can address total cost and its major components. Numerous cost drivers are identified. Statistical tests of efficiency hypotheses are performed. The cost performances of utilities are compared to the industry norm. The suitability of the alternative frontier standard in regulatory applications is discussed.

1. INTRODUCTION

Benchmarking has in recent years become a widely used tool in the assessment of energy utility performance. Managers use benchmarking studies to assess how well their companies are doing. Benchmarking is also used in the regulatory arena to help establish utility rates. In recent years, benchmarking has played an important role in ratemaking in Australia, Canada, Europe (e.g. Britain and Norway), and Latin America (e.g. Bolivia and Panama). Studies have been presented in U.S. rate proceedings but rarely at the initiative of regulators.

Benchmarking of utility performance for regulation requires accurate cost evaluations and such appraisals are challenging. There are important differences among companies in business conditions that influence cost. It is difficult to establish benchmarks that properly control for such conditions even with abundant and high quality data. The data sets available for utility benchmarking

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* Corresponding author, Partner, Pacific Economics Group, 22 E. Mifflin Street, Suite 302, Madison, WI 53705, USA. Email: mnlowry@earthlink.net.

** Senior Economists, Pacific Economics Group, 22 E. Mifflin Street, Suite 302, Madison, WI 53705, USA.

are, however, often quite limited. In most countries, data are available for only a few years and for less than thirty utilities in a given industry. Few countries have gathered the data needed for accurate capital cost benchmarking. Yet capital accounts for more than half of the cost of most "wire" and "pipe" utilities. International benchmarking can produce more sizable data sets but has been hampered by a lack of data standardization and by differences in the activities that utilities perform.

These data challenges have had important consequences for the benchmarking methods used in regulation. In most countries, benchmarking has focused on operation and maintenance (O&M) expenses rather than total cost performance. Benchmarking techniques have been favored that require few data. For example, econometric cost models employed have generally consisted of O&M expenditure functions with simple functional forms and few explanatory variables.[1] The studies rarely consider the statistical significance of benchmarking results. A finding that a utility's cost performance is significantly inferior to a given benchmark is, after all, less likely the smaller is the sample.

The United States is one country where data challenges have not greatly restricted utility benchmarking methods. For several utility industries there, good data are publicly available for many companies for periods of more than ten years. The data include those needed for rigorous benchmarking of capital costs. The favorable data environment has encouraged the estimation of more complex econometric cost benchmarking models and statistical tests of efficiency hypotheses. Studies frequently address total cost as well as O&M expenses.

Another noteworthy feature of many U.S. benchmarking studies has been their use of an average industry efficiency standard.[2] Studies employing this standard measure the extent to which subject utilities have cost performance above or below the apparent industry norm. A frontier performance standard has been more commonly used in benchmarking studies prepared for European regulators.[3] Studies employing this standard measure the extent to which subject utilities have failed to reach the apparent cost efficiency frontier. Benchmarking methods available for making frontier comparisons include corrected ordinary least squares (COLS), stochastic frontier analysis (SFA), and data envelopment analysis (DEA).[4]

1. Examples include the 1997/98 and 2004/05 updates of the price controls for distribution network operators in Britain. Both reviews employed O&M expenditure functions featuring only a composite output variable.

2. Benchmarking studies based on an average industry efficiency standard are also encountered in Australian and Canadian regulation.

3. Jamasb and Pollitt (2001) provide a useful survey of the use of frontier benchmarking studies in regulation.

4. A good introductory discussion of frontier benchmarking methods is Coelli et al (1998). Seminal early works in the frontier benchmarking literature include Meeusen and van den Broek (1977), Aigner, Lovell and Schmidt (1977) and Schmidt and Sickles (1984). More recent studies include Hattori (2002), Hattori, Jamasb and Pollitt (2002), Huiebert (2002) and Burns and Weyman-Jones (1996).

This paper presents an econometric benchmarking study using U.S. data on the cost of power distribution. The study employs a sample of data for sixty-six U.S. distributors spanning twelve years. The model can evaluate O&M expenses, capital cost, and total cost.[5] An average cost standard is employed and statistical tests of efficiency hypotheses are undertaken.

Model specification was aided by previous research on the cost structure of power distribution. The seminal article in the field is Neuberg (1977). Noteworthy recent contributions include Hjalmarsson and Veiderpass (1992), Salvanes and Tjotta (1994) and Yatchew (2000).

The balance of the paper is divided into six sections. We first discuss the use of average and frontier efficiency standards in benchmarking in Section 2. We present the data used in Section 3 and the benchmarking methodology in Section 4. The results are discussed in Section 5. Concluding comments appear in Section 6.

2. EFFICIENCY STANDARDS FOR BENCHMARKING

In considering an appropriate efficiency standard for use in benchmarking it is useful to start by enunciating some basic criteria for selecting benchmarking methods used in regulation. Two such criteria are accuracy and fairness. Considerations of both suggest that an average industry efficiency standard is a worthy alternative to a frontier standard.

With regard to accuracy, consider first that there is currently no effective way to identify the sustainable minimum cost of utility service. At each point in time several utilities in a sample used for benchmarking will likely incur costs that are below the sustainable minimum. A power distributor may, for example, postpone tree trimming costs that are ultimately quite essential to the maintenance of satisfactory service quality. Existing frontier benchmarking methods estimate the distance from the unsustainable cost frontier and are therefore inherently biased in measurement of the distance from the more relevant long run sustainable frontier. This problem is not encountered with an average industry standard.[6]

The accuracy of frontier methods is also limited by the current state of the art. For example, rigorous econometric research on total cost and its major components, capital and O&M expenses, is commonly undertaken using multiple equation systems that are estimated by methods that control for cross equation correlation. It is also desirable to use econometric methods in cost research that correct for heteroscedasticity. SFA estimation procedures that can estimate the parameters of multiple equation cost models, control for cross-equation correlation

5. Assessments of O&M expenses have a long-run character since they do not fully consider how much capital the distributors utilize.

6. Yatchew (2001), in discussing how best to implement benchmarking in regulation, points to similar difficulties in obtaining estimates of "best practices" since they are variable. In addition, he notes that methods that estimate best practices suffer the most from outliers whereas those that estimate the average are less susceptible to them.

and heteroscedasticity are not yet, to our knowledge, readily available. However, these procedures have been developed by the authors for benchmarking using the alternative industry norm standard.

The fairness of a benchmarking method can be defined as its consistency with generally accepted standards for the distribution of the benefits of market activities. The competitive market standard is compelling in this regard. In competitive markets, firms with superior performance earn above average returns. This is true even in the long run.[7] If regulation is to emulate the operation and outcomes of a competitive market, companies with markedly superior performance must therefore be allowed to earn rates of return above the competitive norm. If the industry's best-observed practice is imposed on all firms, any firm that fails to achieve this standard will earn below average returns. This would be true even for superior performers that nevertheless fall short of the industry's best performance.

Data from more competitive industries can shed light on these issues. For example, the authors have surveyed frontier benchmarking studies in agriculture and banking and have found that the typical firm in such industries is about 20% below frontier efficiency. These distance estimates may reflect both the inefficiency of typical firms and the difference between sustainable and unsustainable minimum cost.

3. DATA

Our study is based on a sample of data for U.S. power distributors spanning the period 1991 to 2002. The primary source of the cost and quantity data used in the study is the Federal Energy Regulatory Commission (FERC) Form 1. Major investor-owned electric utilities (IOUs) in the United States are required by law to file this form annually. Data reported on Form 1 must conform to the FERC's Uniform System of Accounts. Many respondents are vertically integrated utilities that also own generation and transmission facilities. However, all are required to separately itemize their distribution costs.

All major U.S. electric IOUs were included in the sample that filed the Form 1 electronically in 2002; have reported, together with any important predecessor companies, the necessary data continuously since they achieved a

7. There are both short-run and long-run equilibria in competitive markets. In the short run, equilibrium occurs whenever quantity supplied equals quantity demanded. But the industry will not be in long-run equilibrium if average returns in the industry are not equal to the competitive rate of return, defined to be the opportunity cost of capital. For example, if average industry returns exceed the competitive rate of return, long-run equilibrium is established as new firms enter the industry and existing firms expand their production, thereby increasing supply and driving down prices and average returns. This process continues until the industry's average return equals the competitive rate of return. For evidence that superior performers continue to earn above-average returns even in the long run, see L. Schwalbach, U. Grabhoff, and T. Mahmood, "The Dynamics of Corporate Profits." *European Economic Review*, October 1989, 1625-1639.

"major" designation; and submitted plausible data in the periods required. Data from sixty-six companies met all of these standards and were used in the study.[8]

Power distribution services are defined to include the local delivery, customer account, sales, and information services provided by distributors. We do not address the costs that they incur for power procurement. The total cost of distribution services thus defined comprises the costs of plant ownership, operation and maintenance.

Our benchmarking method involves the decomposition of cost into three input categories: capital services, labor services, and non-labor O&M inputs. The cost of labor is defined as the sum of O&M salaries and wages, pensions and other employee benefits. The cost of other O&M inputs is defined as assigned O&M expenses net of these labor costs. This input category includes the services of contract workers, insurance, real estate rents, equipment leases, and miscellaneous materials.

The study uses a service price approach to measuring the cost of plant ownership that is based on the economic value of utility plant.[9] Under this approach, the cost of capital is the product of capital price and quantity indexes. This method controls for differences between utilities in the age of their investments.

The capital price index ($WKS_{h,t}$) that we employ is one appropriate for capital services in a competitive rental market. Its formula is:

$$WKS_{h,t} = \mathrm{d}^{*}WKA_{h,t} + WKA_{h,t-1}\,[r_t - (WKA_{h,t} - WKA_{h,t-1})/WKA_{h,t-1}] \quad (1)$$

where for each firm h in year t, $WKA_{h,t}$ is the capital asset price index[10], r_t is the cost of funds, and d is the depreciation rate, which is assumed constant.

The first term in this expression corresponds to the cost of depreciation. A geometric decay treatment of depreciation is used. The second term corresponds to the difference between opportunity cost and capital gains. The term in brackets is the real rate of return on capital. This term is smoothed to reduce capital cost volatility. The cost of capital normally includes certain tax expenses. However, we have chosen to exclude taxes due in part to their volatility.

The capital quantity index that we employ ($XK_{h,t}$) is based on the following perpetual inventory method:

$$XK_{h,t} = (1 - d) * XK_{h,t-1} + \frac{VI_{h,t}}{WKA_{h,t-1}} \quad (2)$$

8. Other sources of data are also used primarily to measure input prices. The sources are Whitman, Requardt & Associates; R.S. Means and Associates; the Bureau of Economic Analysis (BEA) of the U.S. Department of Commerce; the Bureau of Labor Statistics (BLS) of the Department of Labor; and DRI-WEFA.

9. See Hall and Jorgensen (1967) for a seminal discussion of the service price method of capital cost measurement.

10. These data are reported in the *Handy-Whitman Index of Public Utility Construction Costs*, a publication of Whitman, Requardt and Associates.

Here, $VI_{h,t}$ is the value of gross additions to utility plant.

The explanatory variables used in the cost model comprise three measures of output, three input prices, and seven variables that represent miscellaneous other business conditions. The latter group of variables may usefully be called "Z variables". The three output quantity variables are the number of retail customers, the volume of power deliveries to such customers and the line miles in a utility's service territory[11]. The input prices are for labor, non-labor O&M input, and capital.

The Z variables included in the model are the number of gas customers served, the percentage of line miles overhead, average precipitation, a measure of system age, the value of transmission and generation plant, the percentage of deliveries that are made to residential and commercial customers, and average temperature. These variables are discussed further in the results section. The model also contains a trend variable. It permits predicted cost to shift over time for reasons other than changes in the specified business conditions. Table 1 presents the average values of cost model business conditions over the 2000-2002 period.

Table 1. Average Values of Variables in the Benchmarking Study

Variable	Units	U.S. Sample Average
Power Delivery Cost	Dollars	388,187,880
Number of Customers	Count	755,347
Retail Deliveries	MWh	19,683,942
Line Miles	Miles	20,332
Price of Capital Services	Index Number	14.10
Price of Labor Services	Dollars / Year	37,870
Price of Materials	Index Number	102.11
Number of Gas Customers Served	Count	179,743
% of Line Miles Overhead	Percent	77%
Average Precipitation	Inches/Year	36.35
Ten Year Customer Growth	Percent	13%
Transmission and Generation Plant	Dollars	2,169,649,000
% of Deliveries Residential and Commercial	Percent	69%
Temperature	°F	54.16

11. Line miles may also reasonably be viewed as a network variable. With either interpretation, the intention is to capture the cost impact of system extensiveness.

4. BENCHMARKING METHODOLOGY

4.1 Cost Model

We estimate performance relative to the average by using the dual representation of production technology. A simplified version of the dual cost function for a panel data set is:

$$C_{ht} = \beta_0 = X_{ht}\beta + \varepsilon_{ht} \qquad h=1\ldots n,\ t=1\ldots T. \tag{3}$$

Here for each firm h in year t, C_{ht} is total cost, X_{ht} is a vector of explanatory variables, the β term represents model parameters and ε_{ht} is an error term. The term ε_{ht} embodies a firm specific measure of inefficiency, α_h, and random noise, η_{ht}:

$$\varepsilon_{ht} = \alpha_h + \eta_{ht} \qquad h=1\ldots n,\ t=1\ldots T. \tag{4}$$

The model that is estimated is:

$$\begin{aligned} C_{ht} &= \beta_0 + \overline{\alpha} + X_{ht}\beta + \alpha_h - \overline{\alpha} + \eta_{ht} \qquad h=1\ldots n,\ t=1\ldots T. \\ &= \beta_0^* + X_{ht}\beta + \varepsilon_{ht}^* \\ \varepsilon_{ht}^* &= \alpha_h - \overline{\alpha} + \eta_{ht} \end{aligned} \tag{5}$$

We assume a well behaved random noise with $\mathrm{E}(\eta_{ht}) = 0$ and $E(\varepsilon_{ht}^* \mid X_{ht}) = 0$ Thus, the expected difference between the predicted and actual cost of the average firm equals zero. Using parameter estimates of the model, we get an estimate of each firm's efficiency as follows[12]:

$$C_{ht} - \hat{C}_{ht} = \hat{\varepsilon}_{ht}^* = \hat{\alpha}_h - \hat{\overline{\alpha}} + \hat{\eta}_{ht} \qquad h=1\ldots n,\ t=1\ldots T \tag{6}$$

$$E(C_{ht} - \hat{C}_{ht}) \approx \frac{1}{T}\sum_{t=1}^{T}(C_{ht} - \hat{C}_{ht}) = \hat{\alpha}_h - \hat{\overline{\alpha}} \qquad h=1\ldots n,\ t=1\ldots T$$

4.2 Model Specification

The functional form selected for this study is the translog. This form has considerable flexibility and is widely used in econometric cost research

12. This formulation is inspired by Afriat (1972) and Richmond (1974) who suggested a modified version of COLS. Their model is based on a production function for cross sectional data, but can be applied to a cost function as follows. One can estimate the parameters $C_i = \beta_0 + X_i\beta + \varepsilon_i$ by OLS. Then, we obtain $\hat{\beta}_0^* = \hat{\beta}_0 + E(\hat{\varepsilon}_i)$ and $\hat{\varepsilon}_i^* = \hat{\varepsilon}_i - E(\hat{\varepsilon}_i)$. Unlike the COLS case, we can think of this version of inefficiency estimation as measuring performance relative to the average rather than the frontier.

when a sample of adequate size is available.[13] The general form of the translog econometric cost model, where time and firm subscripts have been suppressed for simplicity, is:

$$\begin{aligned} \ln C = \alpha_0 + \sum_i \alpha_i \ln Y_i + \sum_j \alpha_j \ln W_j \\ + \frac{1}{2}\left[\sum_i \sum_k \gamma_{ik} \ln Y_i \ln Y_k + \sum_j \sum_n \gamma_{jn} \ln W_j \ln W_n\right] \\ \sum_i \sum_j \gamma_{jh} \ln W_j \ln Y_h + \sum_l \alpha_l \ln Z_l + \alpha_t T + \varepsilon. \end{aligned} \tag{7}$$

Here Y_i denotes one of M variables that quantify output and W_j denotes one of N input prices. In addition, Z_l denotes one of the L additional business conditions, T is a trend variable, and ε denotes the error term. Notice that, to preserve degrees of freedom, we have not interacted the Z variables with the other variables.[14]

Yatchew (2000), in his study of power distribution cost, finds that the measure of efficiency is not affected by homothetic and log linear representations, with nonparametric scale effect, of the technology. We will apply our measure of inefficiency to these and the homogeneous representations of production technology to determine the effect functional representation has on efficiency.

Benchmarks for capital costs and O&M expenses can be obtained by augmenting the cost equation with the set of cost share equations implied by Shepard's Lemma. Simultaneous estimation of these equations and the cost function can, furthermore, enhance the efficiency of parameter estimates. The general form of a cost share equation for a representative input price category, j, can be written as:

$$S_j = \alpha_j + \sum_i \gamma_{jh} \ln Y_i + \sum_n \gamma_{jn} \ln W_n. \tag{8}$$

4.2 Estimation Methods

It is well known that if there exists contemporaneous correlation between the errors in the system of regression equations, more efficient estimates can be obtained by using a Feasible Generalized Least Squares (FGLS) approach. [15] It is also known that more efficient estimators can be obtained by iterating this procedure to convergence.[16] Since we estimate the unknown disturbance matrices

13. For further discussion of the translog functional form see Guilkey et. al. (1983) and Gagne and Ouellette (1998).

14. Interaction of the Z variables with the input prices is a sensible enhancement when O&M expenses are the focus of research.

15. See Zellner, A. (1962).

16. That is, we iterate the procedure until the determinant of the difference between any two consecutive estimated disturbance matrices are approximately zero.

consistently, the estimators we eventually compute are equivalent to Maximum Likelihood Estimates (MLE).[17]

The firms in our panel dataset are characterized by varying scales of operation, which suggests that we relax the assumption of constant error variance across the N groups. The presence of group-wise heteroscedasticity leads to biased standard errors and, hence, incorrect inference. Our estimation procedure addresses this problem and thereby produces parameter and efficiency estimates that are consistent and efficient.

We also undertake statistical tests of efficiency hypothesis. In assessing performance relative to the average, it is desirable to test the hypothesis that a utility is not an average performer. A conclusion of superior or inferior cost performance, relative to the average, can be reached if this hypothesis is rejected at a designated level of confidence.

To form confidence intervals for our statistical test of efficiency hypothesis, we drop the target utility when estimating the model used to do the predictions. This allows us to use standard errors for out of sample predictions to test whether a utility's efficiency score is statistically significantly different from the average. The confidence interval is wider for utilities that are further away from the average in the sample. The standard errors can also be used to compute t-statistics for tests of efficiency hypotheses.

5. EMPIRICAL RESULTS

5.1 Parameter Estimates

We estimate four specifications of our benchmarking cost model. These are the translog (model 1), the homothetic (model 2), the homogeneous (model 3), and the log-linear (model 4) specifications. The production technology is restricted to be homothetic if the cost function can be written as a separable function of factor prices and output.

The homothetic restriction implies that $\gamma_{jh} = 0$, $\forall j$ and h, so that all factor price and output interaction terms drop out of the cost function. In this case, the slopes of the isoquants are preserved along every ray from the origin and returns to scale are unaffected by factor prices.

The production technology is made homogeneous by imposing the restriction that $\gamma_{ik} = 0$, $\forall i$ and k. In this case, returns to scale are unaffected by increases in output and the unit cost cannot take a u-shaped form. The log-linear model requires that all second order terms drop out of the cost model.

Table 2 presents parameter estimates from all four models. Since estimation was done on data that were mean scaled and logged, the parameter estimates for the first order terms are estimates of the overall elasticity of the variables at the sample mean. These estimates are generally plausible as to sign

17. See Dhrymes (1971), Oberhofer and Kmenta (1974), Magnus (1978).

and magnitude. In models 1 and 2, all parameter estimates of first order terms are, additionally, significant at the 10% level.

Parameter estimates of the prices reflect their shares in total cost. For example, the estimate of the price of capital, α_k, is about 0.60 in all models reflecting the capital intensive nature of the power distribution business. In all four models, the parameter estimates on the number of customers, α_{yn}, show this variable to be the dominant output-related cost driver. The effect on cost of retail deliveries and line miles is in each case about one-third that of that of customer numbers for the average firm. The use of line miles as a variable, together with the number of customers, allows us to account for the impact of customer density on cost. It is generally more costly to serve a less dense service territory. The positive parameter estimate for line miles reflects this since it indicates that holding the number of customers constant, the higher the line miles the lower the density of the service territory and the higher the cost. The parameter estimate on the trend variable, α_t, reflects a modest average downward shift in cost of 0.6% to 0.8% over time.

The coefficients on the additional business conditions are also sensible in all four models. The parameter estimate on the number of customers receiving gas distribution service, α_{z1}, reflects the cost impact of diversification into gas distribution. The negative estimate reflects cost reduction from scope economies.

The second Z variable is the percentage of line miles that is not underground. Underground lines provide a higher quality of service than overhead lines but are also more costly. The negative parameter estimate on the percentage of line miles not underground, α_{z2}, reflects that cost is higher the greater the undergrounding.

The third Z variable is the average precipitation in the service territory. This serves as a proxy for forestation, which raises O&M cost due to tree trimming and other special maintenance activities. The positive parameter estimate on α_{z3} reflects this.

Accurate benchmarking of the total cost of power delivery, which is a capital intensive business, requires consideration of the age of the distribution system.[18] We generally expect a younger system to have higher capital cost but lower O&M expenses. The effect on total cost is unclear. We proxy system age by computing the share of the total number of customers served that have been added in the last ten years, $\frac{N_t - N_{t-10}}{N_t}$, for each year of the sample period. The negative parameter estimate on α_{z4}, suggests that the newer the distribution system, the lower is total cost.

The fifth Z variable is the value of transmission and generation plant. The negative parameter estimate of this variable indicates that there is a systematic difference in the distribution cost of specialized distributors and of vertically integrated utilities. Utilities that engage in generation and transmission have lower distribution cost.

18. Yatchew (2001) broke ground in this area by accounting for the impact of system age on total distribution cost per customer.

Table 2. Parameter Estimates

	Parameter Estimates							
coefficients	Model 1		Model 2		Model 3		Model 4	
α_0	15.074	(0.013)	15.045	(0.013)	15.039	(0.013)	15.054	(0.012)
α_{yn}	0.549	(0.024)	0.570	(0.023)	0.602	(0.023)	0.574	(0.022)
α_{yv}	0.214	(0.025)	0.194	(0.026)	0.179	(0.025)	0.221	(0.024)
α_{yl}	0.225	(0.017)	0.220	(0.016)	0.218	(0.015)	0.226	(0.014)
α_l	0.171	(0.002)	0.179	(0.002)	0.179	(0.002)	0.189	(0.002)
α_k	0.598	(0.002)	0.594	(0.002)	0.594	(0.002)	0.590	(0.002)
α_m	0.231	(0.002)	0.227	(0.002)	0.227	(0.002)	0.221	(0.002)
γ_{ynyn}	0.848	(0.100)	0.812	(0.100)				
γ_{yvyv}	0.908	(0.096)	1.058	(0.099)				
γ_{ylyl}	0.038	(0.063)	-0.043	(0.061)				
γ_{ynyv}	-0.800	(0.088)	-0.935	(0.088)				
γ_{ynyl}	0.028	(0.056)	0.166	(0.055)				
γ_{yvyl}	-0.159	(0.057)	-0.176	(0.057)				
γ_{ll}	-0.027	(0.022)	-0.080	(0.021)	-0.082	(0.021)		
γ_{kk}	-0.016	(0.024)	-0.065	(0.025)	-0.074	(0.026)		
γ_{mm}	0.043	(0.036)	0.146	(0.037)	0.155	(0.038)		
γ_{lk}	0.008	(0.017)	0.012	(0.018)	0.020	(0.019)		
γ_{lm}	0.019	(0.018)	0.068	(0.016)	0.062	(0.016)		
γ_{km}	0.008	(0.019)	0.053	(0.016)	0.054	(0.019)		
γ_{lyn}	0.011	(0.007)						
γ_{lyv}	-0.035	(0.006)						
γ_{lyl}	0.004	(0.005)						
γ_{kyn}	-0.065	(0.007)						
γ_{kyv}	0.077	(0.007)						
γ_{kyl}	-0.001	(0.005)						
γ_{myn}	0.054	(0.008)						
γ_{myv}	-0.042	(0.007)						
γ_{myl}	-0.003	(0.006)						
α_{z1}	-0.005	(0.001)	-0.008	(0.001)	-0.011	(0.001)	-0.010	(0.001)
α_{z2}	-0.138	(0.025)	-0.096	(0.025)	-0.285	(0.023)	-0.247	(0.023)
α_{z3}	0.145	(0.013)	0.122	(0.013)	0.134	(0.013)	0.153	(0.012)
α_{z4}	-0.023	(0.007)	-0.021	(0.007)	-0.018	(0.008)	-0.007	(0.008)
α_{z5}	-0.019	(0.009)	-0.016	(0.008)	-0.012	(0.008)	-0.013	(0.008)
α_{z6}	0.433	(0.034)	0.442	(0.035)	0.194	(0.031)	0.242	(0.032)
α_{z7}	-0.103	(0.047)	-0.111	(0.049)	-0.175	(0.053)	-0.191	(0.052)
α_t	-0.008	(0.002)	-0.008	(0.002)	-0.006	(0.002)	-0.008	(0.002)
system-R^2	0.985		0.982		0.976		0.975	

Standard errors are in parentheses

The sixth Z variable accounts for the special impact of delivering power to residential and commercial customers. The positive parameter estimate indicates that it is more costly to serve these customers. This finding reflects, in part, the fact that industrial customers often obtain fewer distribution services from distributors.

The seventh Z variable is the average temperature over the twelve year period that prevailed in each distributor's service territory. The negative parameter estimate of this variable suggests that, all else equal, utilities in colder regions bear higher cost. Ice storms are likely to be one contributing factor.

5.2. Rankings

Our estimates are based on a panel covering the period 1991-2002. Results from these estimates can be used to determine efficiency of the firms in any given year or over a period of years. Since utilities plan their systems for expected business conditions over a series of years and some explanatory variables are volatile, cost benchmarking should be undertaken over a multiyear timeframe. We choose a three-year period as one providing a reasonable balance between the need for multiyear analysis and contemporary relevance. Thus, we use estimated residuals from the 2000-2002 period to determine efficiency measures.

In addition, we are interested to know whether different functional forms affect efficiency measures and the ranking of firms by efficiency. We compare the translog cost function, which requires extensive data for accurate parameter estimation, and the other three specifications of our cost model discussed earlier. We present efficiency scores and firm rankings from the four models in Table 3.

The homothetic specification produces rankings quite similar to the full translog model, while the homogeneous and log-linear specifications produce rankings that are substantially different. For the first firm, for example, the efficiency score from model 1 shows that its cost is 11.1% above the average, while that from model 2 shows its cost to be 10.9% above the average. Models 3 and 4 show it to have cost that is 3.5% above and 2.8% below the average, respectively.

Table 4 presents Spearman rank correlation coefficients for the rankings of the four models. It can be seen that the correlation coefficients between model 1 and models 3 and 4 are quite a bit lower than that between models 1 and 2.

To select one of the models for benchmarking purposes, we test the full model against the homothetic, the homogeneous and the log-linear models. For this purpose we use the likelihood ratio statistic, which has a χ^2_J distribution with J degrees of freedom, where J is the number of restrictions. The test results in Table 5 show that we can reject all three models and use the results of the full translog model for benchmarking. The results in tables 3-5 suggest that it is desirable to use benchmarking models with flexible functional forms.

Table 3. Scores and Rankings of the Models

	Model 1		Model 2		Model 3		Model 4	
Utility_id	Score	Rank	Score	Rank	Score	Rank	Score	Rank
2	0.111	54	0.109	50	0.035	38	-0.028	33
9	-0.031	33	-0.035	29	-0.060	26	-0.100	22
12	0.084	48	0.099	49	0.131	51	0.113	52
13	0.052	44	0.155	57	0.105	47	0.072	43
14	0.031	40	-0.035	30	0.075	43	0.108	50
17	0.070	45	0.075	44	0.106	48	0.079	45
21	-0.187	11	-0.179	10	-0.100	22	-0.096	23
22	0.106	52	0.136	54	0.122	50	0.111	51
23	-0.036	29	-0.059	23	0.060	41	0.070	42
25	-0.083	22	-0.057	24	0.142	54	0.168	57
27	-0.035	30	0.004	36	0.038	39	0.007	38
29	0.046	43	0.083	45	0.119	49	0.106	49
30	-0.193	10	-0.193	8	-0.283	4	-0.269	7
31	-0.310	4	-0.310	4	-0.312	1	-0.337	2
36	-0.015	35	-0.018	33	0.004	35	-0.022	34
47	0.349	64	0.332	65	0.197	60	0.137	53
50	-0.176	12	-0.093	19	-0.273	7	-0.216	11
53	0.026	39	0.033	40	0.045	40	0.030	39
62	-0.327	2	-0.337	2	-0.208	12	-0.298	4
63	-0.066	24	-0.042	26	-0.019	34	-0.069	29
67	0.094	50	0.087	47	-0.046	29	-0.017	36
73	-0.059	26	-0.067	22	-0.052	28	-0.071	27
89	-0.005	37	-0.016	34	0.004	36	-0.021	35
91	-0.006	36	0.031	39	0.082	44	0.069	41
92	-0.322	3	-0.340	1	-0.274	6	-0.313	3
93	-0.064	25	-0.090	20	-0.109	19	-0.094	24
98	-0.295	5	-0.274	5	-0.286	2	-0.275	6
99	-0.081	23	-0.038	28	-0.224	10	-0.201	13
101	0.042	42	0.047	43	0.034	37	0.097	48
109	0.107	53	0.091	48	0.292	62	0.285	62
110	0.187	61	0.157	58	0.330	63	0.322	64
119	-0.001	38	0.003	35	-0.262	8	-0.224	10
130	0.198	62	0.226	63	0.194	59	0.202	61
131	-0.035	31	0.010	37	-0.101	21	-0.116	20
133	-0.209	8	-0.201	7	-0.078	24	-0.062	32
135	-0.171	13	-0.153	12	-0.213	11	-0.228	9
136	-0.214	7	-0.221	6	-0.194	14	-0.199	14
138	-0.040	27	-0.041	27	-0.037	33	-0.066	31
140	0.144	57	0.159	59	0.169	57	0.182	60
141	0.103	51	0.132	53	0.095	45	0.093	46
142	0.365	65	0.399	66	0.347	64	0.303	63
149	-0.040	28	-0.025	32	-0.039	30	-0.066	30

continued

Table 3. Scores and Rankings of the Models (continued)

	Model 1		Model 2		Model 3		Model 4	
Utility_id	Score	Rank	Score	Rank	Score	Rank	Score	Rank
150	0.369	66	0.332	64	0.372	66	0.390	66
152	-0.022	34	-0.035	31	-0.038	31	-0.070	28
153	-0.032	32	0.014	38	0.067	42	0.074	44
154	-0.086	19	-0.147	15	-0.087	23	-0.085	26
156	-0.149	15	-0.162	11	-0.107	20	-0.132	19
157	-0.209	9	-0.148	14	-0.282	5	-0.282	5
159	0.131	56	0.163	60	0.150	55	0.161	56
163	0.185	60	0.208	61	0.360	65	0.373	65
167	0.093	49	0.120	52	0.207	61	0.174	58
169	-0.093	17	-0.113	17	-0.285	3	-0.342	1
171	-0.374	1	-0.318	3	-0.243	9	-0.239	8
172	0.119	55	0.115	51	0.167	56	0.137	54
178	0.079	46	0.086	46	0.132	52	0.095	47
180	0.081	47	0.039	42	-0.057	27	-0.107	21
181	0.163	58	0.141	55	0.170	58	0.182	59
182	-0.101	16	-0.121	16	-0.163	16	-0.152	15
183	-0.158	14	-0.150	13	-0.204	13	-0.151	16
185	-0.083	21	-0.087	21	-0.152	17	-0.150	17
186	0.229	63	0.218	62	0.142	53	0.158	55
196	-0.090	18	-0.095	18	-0.120	18	-0.138	18
198	0.037	41	0.039	41	-0.037	32	-0.009	37
201	0.164	59	0.144	56	0.101	46	0.068	40
202	0.083	20	-0.043	25	-0.074	25	-0.092	25
203	-0.242	6	-0.187	9	-0.192	15	-0.212	12

Table 4. Spearman Rank Correlation Matrix, 1999-2001 Period

Model	Model 1	Model 2	Model 3	Model 4
Model 1	1.00000			
Model 2	0.98146	1.00000		
Model 3	0.87930	0.87696	1.00000	
Model 4	0.86607	0.86106	0.98297	1.00000

5.3 Use of Results in Regulation

To illustrate the application of benchmarking results in regulation, we assume that they are being used in the context of North American-style price cap regulation. Under this system, the growth of utility rates is limited to the growth in a price cap index (PCI). The growth rate of the PCI equals the growth rate of an inflation measure less an X factor. The X factor reflects industry productivity growth plus a stretch factor that is intended to reflect a company's potential for accelerated productivity growth.

Table 5. Statistical Results for Alternative Cost Model Specifications

Null hypothesis	J	LR-test stat	Critical value (5% level)
Homotheticity	12	162.91	21.03
Homogeneity	18	374.23	28.87
Log-linearity	25	371.51	37.65

Our benchmarking results are clearly relevant to the establishment of the stretch factor. One sensible approach is to establish different stretch factors for utilities with costs that are significantly superior to the industry norm, not statistically distinguishable from the norm, and significantly inferior to the norm. For these three categories, suggested stretch factors are 0%, 0.5%, and 1%. While other stretch factors may be considered, it bears noting that customers ultimately receive benefits from the externalization of ratemaking that benchmarking achieves as well as from the stretch factors assigned.

Table 6 presents efficiency scores, their t-stats, and the implied stretch factors from the translog benchmark model. We use a critical value of 1.65 to determine the cutoff points for superior and inferior cost performance. About 1/3 of utilities are thus deemed superior and inferior cost performers. The majority, 2/3 of utilities, are average cost performers.

6. CONCLUSION

Our study shows that econometric cost benchmarking models of considerable sophistication can be developed for power distributors with a quality dataset of adequate size. Both total cost and its major components can be benchmarked. Statistical methods can be used in model specification and application including, most notably, tests of efficiency hypotheses. These methods are also applicable in the cost appraisal and regulation of other utility businesses. For instance, the authors have developed similar models for power transmission, bundled power service, gas distribution, and water distribution.

The results also suggest several ways to improve the contribution of statistical benchmarking to utility regulation. One is to improve the size and quality of datasets. This can be achieved by greater use of multinational data and, for individual countries, the gathering of better capital cost data and the gradual accumulation of panel datasets. Further development of econometric methods is also desirable. Needed extensions include the refinement and diffusion through standard econometric packages of SFA methods for multi-equation cost models. These methods would, ideally, make corrections for heteroscedasticity and for cross-equation correlation of error terms.

Whether or not these advances are made, we believe that statistical tests of efficiency hypotheses should play a greater role in regulation where benchmarking is used. Generally speaking, conclusions about efficiency should be more difficult to make the smaller and less varied is a sample, the more atypical a

Table 6. Appraisals of Total Cost Performance and Suggested Stretch Factors, 2000-2002

Utility_id	Score	t-stat	p-value	Indicated stretch factor
Significantly Superior Performers				
171	-0.374	-5.705	0.000	0.0
136	-0.214	-5.545	0.000	0.0
31	-0.310	-5.357	0.000	0.0
98	-0.295	-4.051	0.000	0.0
62	-0.327	-3.369	0.001	0.0
92	-0.322	-3.048	0.002	0.0
21	-0.187	-2.972	0.003	0.0
203	-0.242	-2.961	0.003	0.0
30	-0.193	-2.339	0.020	0.0
183	-0.158	-2.255	0.024	0.0
156	-0.149	-1.681	0.093	0.0
Average Performers				
50	-0.176	-1.512	0.131	0.5
157	-0.209	-1.465	0.143	0.5
169	-0.093	-1.393	0.164	0.5
135	-0.171	-1.287	0.198	0.5
202	-0.083	-1.250	0.212	0.5
196	-0.090	-1.200	0.231	0.5
99	-0.081	-1.177	0.240	0.5
154	-0.086	-1.058	0.290	0.5
25	-0.083	-0.893	0.372	0.5
133	-0.209	-0.824	0.410	0.5
182	-0.101	-0.815	0.415	0.5
63	-0.066	-0.758	0.448	0.5
73	-0.059	-0.679	0.497	0.5
185	-0.083	-0.626	0.531	0.5
153	-0.032	-0.611	0.541	0.5
23	-0.036	-0.589	0.556	0.5
93	-0.064	-0.567	0.571	0.5
138	-0.040	-0.465	0.642	0.5
149	-0.040	-0.403	0.687	0.5
131	-0.035	-0.301	0.764	0.5
27	-0.035	-0.290	0.772	0.5
9	-0.031	-0.274	0.784	0.5
36	-0.015	-0.215	0.830	0.5
152	-0.022	-0.177	0.859	0.5
89	-0.005	-0.088	0.930	0.5
91	-0.006	-0.087	0.931	0.5
119	-0.001	-0.005	0.996	0.5
53	0.026	0.249	0.803	0.5
198	0.037	0.294	0.769	0.5
14	0.031	0.305	0.760	0.5
101	0.042	0.371	0.711	0.5

continued

Table 6. Appraisals of Total Cost Performance and Suggested Stretch Factors, 2000-2002 (continued)

Utility_id	Score	t-stat	p-value	Indicated stretch factor
13	0.052	0.518	0.605	0.5
17	0.070	0.661	0.509	0.5
109	0.107	0.733	0.464	0.5
12	0.084	0.818	0.414	0.5
2	0.111	0.891	0.373	0.5
29	0.046	0.953	0.341	0.5
167	0.093	1.005	0.315	0.5
180	0.081	1.028	0.304	0.5
178	0.079	1.046	0.296	0.5
67	0.094	1.118	0.264	0.5
140	0.144	1.391	0.165	0.5
172	0.119	1.535	0.125	0.5
159	0.131	1.641	0.101	0.5
Significantly Inferior Performers				
110	0.187	1.745	0.081	1.0
141	0.103	1.846	0.065	1.0
163	0.185	1.940	0.053	1.0
186	0.229	1.974	0.049	1.0
181	0.163	2.214	0.027	1.0
201	0.164	2.339	0.020	1.0
130	0.198	2.960	0.003	1.0
22	0.106	3.054	0.002	1.0
47	0.349	4.497	0.000	1.0
142	0.365	4.593	0.000	1.0
150	0.369	6.080	0.000	1.0

subject utility is from the sample used to appraise it, and the more poorly the cost model explains the data on which it is based. Active use of hypotheses tests will thus encourage regulators to employ better benchmarking methods. The ability of a benchmarking method to facilitate hypotheses tests on efficiency should be an important consideration in method selection.

REFERENCES

Afriat, S.N. (1972). "Efficiency Estimation of Production Functions." *International Economic Review* 13: 568-598.

Aigner, D.J., C.A.K. Lovell and P. Schmidt (1977). "Formulation and Estimation of Stochastic Frontier Production Function Models." *Journal of Econometrics* 6(2): 21-38.

Burns, P. and T.G. Weyman-Jones (1996). "Cost Functions and Cost Efficiency in Electricity Distribution: A Stochastic Frontier Approach." *Bulletin of Economic Research* 48(1): 41-64.

Coelli, T., D.S.P. Rao and G.E. Battese (1998). *An Introduction to Efficiency and Productivity Analysis*: Norwell, MA. Kluwer Academic Publishers.

Dhrymes, P. J. (1971). "Equivalence of Iterative Aitkin and Maximum Likelihood Estimators for a System of Regression Equations." *Australian Economic Papers* 10: 20-4.

DRI-WEFA (various years). *Utility Cost Information Service.*

Gagne, R. and P. Ouellette (1998). "On the Choice of Functional Forms: Summary of a Monte Carlo Experiment." *Journal of Business and Economic Statistics* 16(1): 118-124.

Guilkey, D. K., C.A.K. Lovell and R.C. Sickles (1983). "A Comparison of the Performance of Three Flexible Functional Forms." *International Economic Review* 24: 591-616.

Hattori, T. (2002). "Relative Performance of U.S. and Japanese Electricity Distribution: An Application of Stochastic Frontier Analysis." *Journal of Productivity Analysis* 18(3): 269-284.

Hattori, T., T. Jamasb and M.G. Pollitt (2002). "Relative Performance of UK and Japanese Electricity Distribution Systems 1985-1998: Lessons for Incentive Regulation." DAE Working Paper: 0212(CMI03). University of Cambridge.

Hiebert, L.D. (2002). "The Determinants of the Cost Efficiency of Electric Generating Plants: A Stochastic Frontier Approach." *Southern Economic Journal* 64(4): 935-946.

Hjalmarsson, L. and A. Veiderpass (1992). "Efficiency and Ownership in Swedish Electricity Retail Distribution." *Journal of Productivity Analysis* 3: 7-23.

Hall, R. and D. W. Jorgensen (1967). "Tax Policy and Investment Behavior." *American Economic Review* 57: 391-4140.

Hulten, C. and F. Wykoff (1981). "The Measurement of Economic Depreciation" in C. Hulten, ed., *Depreciation, Inflation, and the Taxation of Income From Capital.* Washington, D.C.: Urban Institute.

Jamasb, T. and M. Pollitt (2001). "Benchmarking and Regulation: International Electricity Experience," *Utilities Policy* 9: 107-130.

Magnus, J. R. (1978). "Maximum Likelihood Estimation of the GLS Model with Unknown Parameters in the Disturbance Covariance Matrix." *Journal of Econometrics* 7: 281-312.

Means, R.S. (1999). *Heavy Construction Cost Data.* Kingston, MA.

Meeusen, W. and J. van den Broeck (1977). "Efficiency Estimation from Cobb-Douglas Production Functions With Composed Error," *International Economic Review* 18: 435-444.

Neuberg, L. (1977). "Two Issue in Municipal Ownership of Electric Power Distribution Systems." *Bell Journal of Economics* 8: 302-323.

Oberhofer, W. and Kmenta, J. (1974). "A General Procedure for Obtaining Maximum Likelihood Estimates in Generalized Regression Models." *Econometrica* 42: 579-90.

Richmond, J. (1974). "Estimating the Efficiency of Production." *International Economic Review* 15: 515-521.

Salvanes, K. and S. Tjotta (1998). "Productivity Differences in Multiple Output Industries," *Journal of Productivity Analysis* 4: 23-43.

Schmidt, P. and R.C. Sickles (1984). "Production Frontiers and Panel Data." *Journal of Business and Economic Statistics* 2: 367-374.

U.S. Department of Commerce (1994). *Statistical Abstract of the United States.* Washington, D.C.

U.S. Department of Commerce (various issues). *Survey of Current Business.* Washington, D.C.

U.S. Department of Commerce, unpublished data on the stocks and service lives of the capital of Local Distribution Companies.

U.S. Department of Labor (1998). *National Compensation Survey.* Washington, D.C.

U.S. Federal Energy Regulatory Commission (various years). *FERC Form 1.* Washington, D.C.

Varian, H. (1984). *Microeconomic Analysis.* New York: Norton and Company.

Whitman, Requardt and Associates (1993). *Handy-Whitman Index of Public Utility Construction Costs.* Baltimore, MD.

Yatchew, A. (2000). "Scale Economies in Electricity Distribution: A Semiparametric Analysis." *Journal of Applied Econometrics* 15: 187-210.

Yatchew, A. (2001). "Incentive Regulation of Distributing Utilities Using Yardstick Competition." *The Electricity Journal*, January/February: 56-60.

Zellner, A. (1962). "An Efficient Method of Estimating Seemingly Unrelated Regressions and Tests of Aggregation Bias." *Journal of the American Statistical Association* 57: 348-68.

COMMONWEALTH OF MASSACHUSETTS
DEPARTMENT OF TELECOMMUNICATIONS AND ENERGY

RESPONSE OF BAY STATE GAS COMPANY TO THE
FIRST SET OF INFORMATION REQUESTS FROM THE MASS OIL HEAT COUNCIL
D. T. E. 05-27

Date: June 27, 2005

Responsible: Stephen H. Bryant, President

MOC-1-2 Please indicate the anticipated level of the Company's advertising, marketing and sales promotion expenses for this year.

Response: The Company's advertising, marketing and promotion expenses for 2005 are expected to be $491,500. This total includes $86,100 in customer incentives, and $37,900 in below the line costs.

COMMONWEALTH OF MASSACHUSETTS
DEPARTMENT OF TELECOMMUNICATIONS AND ENERGY

RESPONSE OF BAY STATE GAS COMPANY TO THE
FIRST SET OF INFORMATION REQUESTS FROM THE MASS OIL HEAT COUNCIL
D. T. E. 05-27

Date: June 27, 2005

Responsible: Stephen H. Bryant, President

MOC-1-7 For the years 2005 (to date), 2004, 2003, and 2002, please separately indicate the number of marketing lead calls that the Company received for natural gas appliance service, installation, repair, maintenance, upgrade, and/or conversions. Please further indicate the Company's projected marketing lead calls for each category for the remainder of the current year.

Response: There is no actual count of the number of leads. Information on the number of calls received in some of these categories is available starting on June 9, 2004. The information is not available for fee for service appliance calls, which are bundled with meter calls in the Customer Contact Center. The table below contains the information for 2004 from June 9, through December 31, for 2005 through May, and 2005 projections for June through December for the following categories:

- Upgrade and Conversions, which we assume to mean natural gas throughput sales
- Installations, which we assume to mean furnace, boiler and water heater sales calls
- Maintenance, which we assume to mean Guardian Care Service Contract calls.

	2004 6-9-12/31	2005 May ytd	2005 Jun-Dec Projected
Upgrade/Conversions	4844	3159	5643
Installations	7696	5207	8735
Maintenance (Guardian Care)	7328	2492	6338

COMMONWEALTH OF MASSACHUSETTS
DEPARTMENT OF TELECOMMUNICATIONS AND ENERGY

RESPONSE OF BAY STATE GAS COMPANY TO THE
FIRST SET OF INFORMATION REQUESTS FROM THE MASS OIL HEAT COUNCIL
D. T. E. 05-27

Date: June 27, 2005

Responsible: Stephen H. Bryant, President

MOC-1-16 With regard to marketing leads received by the Company, please provide the Company's policy and practice in assigning leads to its EP&S division, to any affiliate(s) and to outside contractors. Please provide all documentation regarding such policy and practice.

Response: The Company does not “assign” leads to EP&S. EP&S markets its own products. Customers responding to that marketing go to EP&S. However, those calls, as well as calls not generated by EP&S marketing, all go through the same phone number, which contains the following pre-recorded message:

> Many services provided by Bay State Gas and Northern Utilities are also provided by independent contractors. We will be happy to provide you with a list, just ask the customer service representative that takes your call.

In addition, Bay State’s Customer Service Representatives routinely offer customers a Participating Contractor list when discussing the installation of a natural gas heating system.

The customer ultimately decides whether to pursue the installation through Bay State Gas or an independent contractor, or to solicit proposals from both.

COMMONWEALTH OF MASSACHUSETTS
DEPARTMENT OF TELECOMMUNICATIONS AND ENERGY

RESPONSE OF BAY STATE GAS COMPANY TO THE
FOURTH SET OF INFORMATION REQUESTS FROM THE MASS OIL HEAT COUNCIL
D. T. E. 05-27

Date: June 27, 2005

Responsible: Stephen H. Bryant, President

MOC-4-3 Please indicate whether the EP&S division performs services for customers who are not utility customers of Bay State. If so, please identify the number of non-Bay State customers by type of service offered for each year beginning with 2002 to 2005 (to date).

Response: Yes. Bay State estimates that a sizable number of customers renting both water heaters and conversion burners are landlords that may or may not be utility customers of the Company, but the appliances are served with natural gas from Bay State's distribution system. In addition, there are likely a small number of EP&S customers that are near our distribution system, but not utility customers. There are no records kept to identify these customers separately from other customers.

COMMONWEALTH OF MASSACHUSETTS
DEPARTMENT OF TELECOMMUNICATIONS AND ENERGY

RESPONSE OF BAY STATE GAS COMPANY TO THE
FOURTH SET OF INFORMATION REQUESTS FROM THE MASS OIL HEAT COUNCIL
D. T. E. 05-27

Date: June 27, 2005

Responsible: Stephen H. Bryant, President

MOC-4-4 Mr. Bryant states in his testimony that the EP&S' "heating system installation jobs in its distribution system is only 4% of the total market for this activity". With regard to this statement, provide the following information:

(a) please indicate whether the 4% figure applies solely to the Boiler and Service Sales Installation Business. If so, please indicate whether this figure represents the total sales and service activity of the Boiler and Service Sales Installation Business within the Company's service territories.

(b) please provide the percentage of the total market activity within the Company's service territories for conversion jobs. Also provide the percentage for work performed outside the Company's service territories, if any; and

(c) please provide the percentage of total market activity for the EP&S Guardian Care Service, Water Heater Rental, Annual Inspection and Fee for Service Businesses, within the Company's service territories and beyond the Company's service territories if applicable.

Response: (a) 4% is the Company's estimate of its percentage of the furnaces and boilers installed along its distribution system.

(b) Bay State added 418 residential conversion customers in 2004. While the Company does not track the number of installations it performs that are conversions, the number is estimated to be less than 2% of 2004 installations, or roughly 14. 14 installations would be roughly 3% of conversions for new customers in 2004. The Company does not track the number of services it performs outside of its service territory, but the amount of such activity is very small. The number of installations performed outside its service territory is obviously between 0 and 14.

(c) Bay State has no knowledge of how many customers have service contracts, water heater rentals, annual inspections, or fee for service repairs from other providers. Therefore, the Company cannot estimate what its percentage of total market activity for these services would be.

COMMONWEALTH OF MASSACHUSETTS
DEPARTMENT OF TELECOMMUNICATIONS AND ENERGY

RESPONSE OF BAY STATE GAS COMPANY TO THE
FOURTH SET OF INFORMATION REQUESTS FROM THE MASS OIL HEAT COUNCIL
D. T. E. 05-27

Date: June 27, 2005

Responsible: Stephen H. Bryant, President

MOC-4-7 On the Company's website at www.baystategas.com/forhome/contractors.htm under the title "Participating Contractors", there is a list of independent contractors who have met two conditions to be listed on the page (they must return customer calls within two days and must provide an estimate within seven days). With regard to this list:

(a) please identify any other conditions that a contractor must satisfy to earn a listing on the page and provide agreements and/or other relevant documentation; and

(b) how does the Company monitor the services performed by the listed contractors? For the years 2002 to 2005 (to date), indicate whether any contractor has been dropped from the list or from the program(s)? If so, please describe the reasons and circumstances for removal.

Response: All conditions and agreements required to become a Participating Contractor are listed and/or attached to MOC-01-12.

Participating Contractors are independent contractors and not agents of Bay State Gas, therefore, the Company does not pro-actively monitor the quality of their work. The Company follows up on customer complaints regarding contractor performance. The Company has no record of removing any contractor from the list between 2002 and 2005.

COMMONWEALTH OF MASSACHUSETTS
DEPARTMENT OF TELECOMMUNICATIONS AND ENERGY

RESPONSE OF BAY STATE GAS COMPANY TO THE
FOURTH SET OF INFORMATION REQUESTS FROM THE MASS OIL HEAT COUNCIL
D. T. E. 05-27

Date: June 27, 2005

Responsible: Stephen H. Bryant, President

MOC-4-8 Among the terms and conditions of the Guardian Care Repair Service Plan is the statement "At its discretion, Bay State may use qualified contractors to fulfill all or any part of its obligations under the terms and conditions of this agreement." (See Exh. BSG/JES-5, page 18 of 24). With regard to this statement, provide the following information:

(a) for 2002 to 2005 (to date), please identify how many times the Company has used independent contractors to perform Guardian Care Services for customers and the costs associated with retaining such contractors;

(b) please indicate whether the contractors listed on the Company's website at www.baystategas.com/forhome/contractors.htm are the only contractors utilized by the Company to perform Guardian Care Services. If not, describe how contractors are selected to perform Guardian Care Services; and

(c) please identify the reasons the Company would exercise its discretion to utilize an independent contractor to fulfill its Guardian Care Service obligations.

Response: (a) The Company has no record of how many times it has used independent contractors to perform Guardian Care services.

(b) Not necessarily. There are stringent requirements to join the Participating Contractor program because we are referring the contractor to our customers, and there is no oversight of the work by Bay State Gas. In the rare case that Bay State Gas may utilize a contractor to perform Guardian Care service, Bay State is responsible for that service.

(c) The Company almost never utilizes contractors to perform Guardian Care service. However, it retains the right to do so to ensure that the customer will receive a timely response to its service request. Many customers prefer to deal exclusively with Bay State Gas. In the interest of full and fair disclosure, the Company has an obligation to inform its customers that there is a possibility of a non-Bay State Gas employee performing the necessary service work.

COMMONWEALTH OF MASSACHUSETTS
DEPARTMENT OF TELECOMMUNICATIONS AND ENERGY

RESPONSE OF BAY STATE GAS COMPANY TO THE
SECOND SET OF INFORMATION REQUESTS FROM USWA, AFL-CIO/CLC
D. T. E. 05-27

Date: June 27, 2005

Responsible: Stephen H. Bryant, President

USWA-2-11: For 1999 to date, state the total number of times Guardian Care customers waited at least 24 hours to receive service for a no heat/repair call. Provide annual totals for the years 1999-2005. Additionally, for 1999 to date, provide all documents regarding or relating to service delays for Guardian Care and Rental customers.

Response: The Company does not track the number of times Guardian Care customers waited at least 24 hours to receive service for a no heat/repair call.

Repairs are scheduled according to manpower availability as indicated by the scheduling board. When the Customer Service Representative ("CSR") attempts to schedule a repair order, the next available openings are presented as options to choose from. Guardian Care and Rental customers are given priority over non-contract customers. For Guardian Care and Rental customers, the CSR "overrides" the scheduling board. There is no information available regarding "service delays" for Guardian Care and Rental customers.

The only documents that are available are scheduling updates that were provided on many fall and winter days from 2001-2004. These updates indicate when the next "open" spot on the board would be for a non-Guardian Care and Rental customer. Producing these more or less daily email updates is a burdensome request and would not be responsive because for the most part, they do not have an impact on Guardian Care and Rental Repair scheduling. Attachments USWA-02-11 (a) through USWA-02-11 (q) are representative samples of the first report issued in each month from 2001-2004.

Arthur O'Brien

10/01/2001 10:27 AM

To: BGC - Springfield Billing and Service Reps@NiSource, BGC - Inbound Revenue Recovery Reps@NiSource, BGC - Brockton Service Dispatch@NiSource, Janet D'Entremont/BSG/Enterprise@NiSource, Pat Teague/BSG/Enterprise@NiSource, Joan Henry/BSG/Enterprise@NiSource, Rich Sasdi/BSG/Enterprise@NiSource, Martin Poulin/BSG/Enterprise@NiSource

cc:

Subject: SPRINGFIELD DIVISION

As of 10:25am, Springfield division will be accepting Guardian Care and rental customers only today. This is due to the heavy workload.

Arthur O'Brien

11/14/2001 03:39 PM

To: BGC - Inbound Revenue Recovery Reps@NiSource, BGC - Springfield Billing and Service Reps@NiSource, BGC - Brockton Service Dispatch@NiSource, Jim Murphy/BSG/Enterprise@NiSource, Pat Teague/BSG/Enterprise@NiSource, Joan Henry/BSG/Enterprise@NiSource, Rich Sasdi/BSG/Enterprise@NiSource, Martin Poulin/BSG/Enterprise@NiSource, Alex Petrosino/BSG/Enterprise@NiSource

cc:

Subject: BROCKTON DIVISION--GUARDIAN/CARE &RENTAL ONLY

BROCKTON DIVISION will accept ONLY guardian/care, rentals & propane contract customers for Thursday 11/15.

This is due to heavy meter workload.

Arthur O'Brien

10/29/2002 10:00 AM

To: Ralph Wadman/BSG/Enterprise@NiSource, Rick Waldman/BSG/Enterprise@NiSource, William Keane/BSG/Enterprise@NiSource, Gail Rooslet/BSG/Enterprise@NiSource, Patricia Kurey/BSG/Enterprise@NiSource, Karen Rogers/BSG/Enterprise@NiSource, Bob Thompson/BSG/Enterprise@NiSource, Patricia Machado/BSG/Enterprise@NiSource, Helen Egan/BSG/Enterprise@NiSource, Justin McCarthy/BSG/Enterprise@NiSource

cc: Jim Murphy/BSG/Enterprise@NiSource, Bill St.Cyr/BSG/Enterprise@NiSource, Janet D'Entremont/BSG/Enterprise@NiSource, Pamela Bellino/BSG/Enterprise@NiSource, Mike Laghetto/BSG/Enterprise@NiSource, Ray Roy/BSG/Enterprise@NiSource, Robert Lundergan/BSG/Enterprise@NiSource, Robert Morin/BSG/Enterprise@NiSource, Perry Robichaud/BSG/Enterprise@NiSource, Paul Rogosienski/BSG/Enterprise@NiSource, Pat Teague/BSG/Enterprise@NiSource, Martin Poulin/BSG/Enterprise@NiSource

Subject: SCHEDULE BOARD STATUS---- TUESDAY 10/29

This is a snapshot of the schedule boards as of 9:45am:

BROCKTON DIVISION:
*service board closed Tuesday 10/29.(nxt available opening Wed. 10/30)
*meter board closed Tuesday through Thursday(nxt available opening Friday 11/1).

SPRINGFIELD DIVISION:
*service board closed Tuesday 10/29.(nxt available opening Wed. 10/30).
*meter board closed Tuesday & Wednesday.(nxt available opening Thursday 10/31)

LAWRENCE DIVISION:
*service board closed Tuesday 10/29.(nxt available opening Wed. 10/30)
*meter board closed Tuesday &Wednesday.(nxt available opening Thursday 10/31).

New Hampshire Division:
*service board closed Tuesday 10/29.(nxt available opening Wed 10/30)
*meter board closed Tuesday through Thursday.(nxt available opening Friday 11/1)

MAINE DIVISION:
*meter board closed Tuesday 10/29.(nxt available opening Wed. 10/30).

Arthur O'Brien

11/01/2002 11:27 AM

To: Ralph Wadman/BSG/Enterprise@NiSource, Rick Waldman/BSG/Enterprise@NiSource, William Keane/BSG/Enterprise@NiSource, Gail Rooslet/BSG/Enterprise@NiSource, Patricia Kurey/BSG/Enterprise@NiSource, Karen Rogers/BSG/Enterprise@NiSource, Patricia Machado/BSG/Enterprise@NiSource, Kate Kelliher/BSG/Enterprise@NiSource, Helen Egan/BSG/Enterprise@NiSource, Justin McCarthy/BSG/Enterprise@NiSource

cc: Bill St.Cyr/BSG/Enterprise@NiSource, Jim Murphy/BSG/Enterprise@NiSource, Janet D'Entremont/BSG/Enterprise@NiSource, Pamela Bellino/BSG/Enterprise@NiSource, Mike Laghetto/BSG/Enterprise@NiSource, Ray Roy/BSG/Enterprise@NiSource, Michael Capeless/BSG/Enterprise@NiSource, Robert Morin/BSG/Enterprise@NiSource, Robert Lundergan/BSG/Enterprise@NiSource, Perry Robichaud/BSG/Enterprise@NiSource, Paul Rogosienski/BSG/Enterprise@NiSource, Claire DesRochers/BSG/Enterprise@NiSource, Rich Sasdi/BSG/Enterprise@NiSource, Pat Teague/BSG/Enterprise@NiSource, Martin Poulin/BSG/Enterprise@NiSource, Danny Cote/BSG/Enterprise@NiSource

Subject: SCHEDULE BOARD STATUS---- FRIDAY 11/1

This is a snapshot of the schedule boards as of 11:15am:

BROCKTON DIVISION:
*service board closed for today.(nxt available opening Monday 11/4).
*meter board closed Friday, Monday & Tuesday.(nxt available opening Wed 11/6)

SPRINGFIELD DIVISION:
*service board closed today.(nxt available opening Monday 11/4)
*meter board closed Friday, Monday & Tuesday.(nxt available opening Wed 11/6)

LAWRENCE DIVISION:
*service board closed Friday & Monday.(nxt available opening Tuesday 11/5)
*meter board closed Friday, Monday & Tuesday.(nxt available opening Wed 11/6).

NEW HAMPSHIRE DIVISION:
*service board closed today.(nxt available opening Monday 11/4).
*meter board closed Friday, Monday and Tuesday.(nxt available opening Wed 11/6)

MAINE DIVISION:
*meter board closed today.(nxt available opening Monday 11/4).

Arthur O'Brien

12/02/2002 09:06 AM

To: Ralph Wadman/BSG/Enterprise@NiSource, Rick Waldman/BSG/Enterprise@NiSource, William Keane/BSG/Enterprise@NiSource, Gail Rooslet/BSG/Enterprise@NiSource, Patricia Kurey/BSG/Enterprise@NiSource, Karen Rogers/BSG/Enterprise@NiSource, Patricia Machado/BSG/Enterprise@NiSource, Helen Egan/BSG/Enterprise@NiSource, Justin McCarthy/BSG/Enterprise@NiSource, Bob Thompson/BSG/Enterprise@NiSource, Claire DesRochers/BSG/Enterprise@NiSource

cc: Bill St.Cyr/BSG/Enterprise@NiSource, Jim Murphy/BSG/Enterprise@NiSource, Pamela Bellino/BSG/Enterprise@NiSource, Janet D'Entremont/BSG/Enterprise@NiSource, Mike Laghetto/BSG/Enterprise@NiSource, Ray Roy/BSG/Enterprise@NiSource, Michael Capeless/BSG/Enterprise@NiSource, Robert Morin/BSG/Enterprise@NiSource, Robert Lundergan/BSG/Enterprise@NiSource, Perry Robichaud/BSG/Enterprise@NiSource, Paul Rogosienski/BSG/Enterprise@NiSource, Pat Teague/BSG/Enterprise@NiSource, Martin Poulin/BSG/Enterprise@NiSource, Danny Cote/BSG/Enterprise@NiSource

Subject: SCHEDULE BOARD STATUS---- MONDAY 12/2

This is a snapshot of the schedule boards as of 9am:

BROCKTON DIVISION:
*service board open today
*meter board closed today.(nxt available opening Tuesday 12/3)

SPRINGFIELD DIVISION:
*service board open today
*meter board open today

LAWRENCE DIVISION:
*service board open today
*meter board closed today.(nxt available opening Tuesday 12/3)

NEW HAMPSHIRE DIVISION:
*service board closed today.(nxt available opening Tuesday 12/3)
*meter board closed today.(nxt available opening Tuesday 12/3)

MAINE DIVISION:
*meter board closed today.(nxt available opening Tuesday 12/3)

Arthur O'Brien

01/03/2003 11:00 AM

To: Ralph Wadman/BSG/Enterprise@NiSource, Rick Waldman/BSG/Enterprise@NiSource, William Keane/BSG/Enterprise@NiSource, Gail Rooslet/BSG/Enterprise@NiSource, Patricia Kurey/BSG/Enterprise@NiSource, Karen Rogers/BSG/Enterprise@NiSource, Patricia Machado/BSG/Enterprise@NiSource, Helen Egan/BSG/Enterprise@NiSource, Justin McCarthy/BSG/Enterprise@NiSource, Bob Thompson/BSG/Enterprise@NiSource, Claire DesRochers/BSG/Enterprise@NiSource

cc: Bill St.Cyr/BSG/Enterprise@NiSource, Jim Murphy/BSG/Enterprise@NiSource, Pamela Bellino/BSG/Enterprise@NiSource, Janet D'Entremont/BSG/Enterprise@NiSource, Mike Laghetto/BSG/Enterprise@NiSource, Ray Roy/BSG/Enterprise@NiSource, Michael Capeless/BSG/Enterprise@NiSource, Robert Morin/BSG/Enterprise@NiSource, Robert Lundergan/BSG/Enterprise@NiSource, Perry Robichaud/BSG/Enterprise@NiSource, Paul Rogosienski/BSG/Enterprise@NiSource, Pat Teague/BSG/Enterprise@NiSource, Martin Poulin/BSG/Enterprise@NiSource, Danny Cote/BSG/Enterprise@NiSource

Subject: SCHEDULE BOARD STATUS--- FRIDAY 1/3/03

This is a snapshot of the schedule boards as of 11am:

BROCKTON DIVISION:
*service board closed today.(nxt available opening Monday 1/6)
*meter board open today.

SPRINGFIELD DIVISION:
*service board open today.
*meter board open today.

LAWRENCE DIVISION:
*service board open today.
*meter board open today.

NEW HAMPSHIRE DIVISION:
*service board open today.
*meter board open today.

MAINE DIVISION:
*meter board open today.

Arthur O'Brien

02/03/2003 08:54 AM

To: Ralph Wadman/BSG/Enterprise@NiSource, Rick Waldman/BSG/Enterprise@NiSource, William Keane/BSG/Enterprise@NiSource, Gail Rooslet/BSG/Enterprise@NiSource, Karen Rogers/BSG/Enterprise@NiSource, Patricia Machado/BSG/Enterprise@NiSource, Justin McCarthy/BSG/Enterprise@NiSource, Bob Thompson/BSG/Enterprise@NiSource, Claire DesRochers/BSG/Enterprise@NiSource

cc: Bill St.Cyr/BSG/Enterprise@NiSource, Jim Murphy/BSG/Enterprise@NiSource, Pamela Bellino/BSG/Enterprise@NiSource, Janet D'Entremont/BSG/Enterprise@NiSource, Paul Giguere/BSG/Enterprise@NiSource, Mike Laghetto/BSG/Enterprise@NiSource, Ray Roy/BSG/Enterprise@NiSource, Michael Capeless/BSG/Enterprise@NiSource, Robert Morin/BSG/Enterprise@NiSource, Robert Lundergan/BSG/Enterprise@NiSource, Perry Robichaud/BSG/Enterprise@NiSource, Paul Rogosienski/BSG/Enterprise@NiSource, Pat Teague/BSG/Enterprise@NiSource, Martin Poulin/BSG/Enterprise@NiSource, Danny Cote/BSG/Enterprise@NiSource

Subject: SCHEDULE BOARD STATUS---- MONDAY 2/3/03

This is a snapshot of the schedule boards as of 8:45am:

BROCKTON DIVISION:
*service board closed today.(nxt available opening Tuesday 2/4).
*meter board open today.

SPRINGFIELD DIVISION:
*service board open today.
*meter board open today.

LAWRENCE DIVISION:
*service board open today.
*meter board open today.

NEW HAMPSHIRE DIVISION:
*service board open today.
*meter board open today.

MAINE DIVISION:
*meter board open today.

Arthur O'Brien

03/03/2003 12:42 PM

To: Ralph Wadman/BSG/Enterprise@NiSource, Rick Waldman/BSG/Enterprise@NiSource, Karen Rogers/BSG/Enterprise@NiSource, William Keane/BSG/Enterprise@NiSource, Patricia Machado/BSG/Enterprise@NiSource, Gail Rooslet/BSG/Enterprise@NiSource, Helen Egan/BSG/Enterprise@NiSource, Patricia Kurey/BSG/Enterprise@NiSource, Justin McCarthy/BSG/Enterprise@NiSource, Bob Thompson/BSG/Enterprise@NiSource, Claire DesRochers/BSG/Enterprise@NiSource, Kate Kelliher/BSG/Enterprise@NiSource, Marie Hicks/BSG/Enterprise@NiSource
cc: Bill St.Cyr/BSG/Enterprise@NiSource, Jim Murphy/BSG/Enterprise@NiSource, Pamela Bellino/BSG/Enterprise@NiSource, Janet D'Entremont/BSG/Enterprise@NiSource, Paul Giguere/BSG/Enterprise@NiSource, Mike Laghetto/BSG/Enterprise@NiSource, Ray Roy/BSG/Enterprise@NiSource, Michael Capeless/BSG/Enterprise@NiSource, Robert Morin/BSG/Enterprise@NiSource, Robert Lundergan/BSG/Enterprise@NiSource, Perry Robichaud/BSG/Enterprise@NiSource, Paul Rogosienski/BSG/Enterprise@NiSource, Pat Teague/BSG/Enterprise@NiSource, Martin Poulin/BSG/Enterprise@NiSource, Danny Cote/BSG/Enterprise@NiSource
Subject: SCHEDULE BOARD STATUS -- MONDAY 3/3/03

This is a snapshot of the schedule boards as of 12:30pm:

BROCKTON DIVISION:
*service board closed today.(nxt available opening Tuesday 3/4).
*meter board closed today.(nxt available opening Tuesday 3/4).

SPRINGFIELD DIVISION:
*service board closed today.(nxt available opening Tuesday 3/4).
*meter board open today.

LAWRENCE DIVISION:
*service board open today.
*meter board open today.

NEW HAMPSHIRE DIVISION:
*service board closed today(nxt available opening Tuesday 3/4)
*meter board closed today.(nxt available opening Tuesday 3/4)

MAINE DIVISION:
*meter board closed today.(nxt available opening Tuesday 3/4)

Arthur O'Brien

04/01/2003 10:52 AM

To: Ralph Wadman/BSG/Enterprise@NiSource, Rick Waldman/BSG/Enterprise@NiSource, Karen Rogers/BSG/Enterprise@NiSource, William Keane/BSG/Enterprise@NiSource, Patricia Machado/BSG/Enterprise@NiSource, Gail Rooslet/BSG/Enterprise@NiSource, Helen Egan/BSG/Enterprise@NiSource, Patricia Kurey/BSG/Enterprise@NiSource, Justin McCarthy/BSG/Enterprise@NiSource, Bob Thompson/BSG/Enterprise@NiSource, Kate Kelliher/BSG/Enterprise@NiSource, Marie Hicks/BSG/Enterprise@NiSource, Claire DesRochers/BSG/Enterprise@NiSource

cc: Bill St.Cyr/BSG/Enterprise@NiSource, Jim Murphy/BSG/Enterprise@NiSource, Pamela Bellino/BSG/Enterprise@NiSource, Janet D'Entremont/BSG/Enterprise@NiSource, Paul Giguere/BSG/Enterprise@NiSource, Mike Laghetto/BSG/Enterprise@NiSource, Ray Roy/BSG/Enterprise@NiSource, Michael Capeless/BSG/Enterprise@NiSource, Robert Morin/BSG/Enterprise@NiSource, Robert Lundergan/BSG/Enterprise@NiSource, Perry Robichaud/BSG/Enterprise@NiSource, Paul Rogosienski/BSG/Enterprise@NiSource, Pat Teague/BSG/Enterprise@NiSource, Martin Poulin/BSG/Enterprise@NiSource, Danny Cote/BSG/Enterprise@NiSource

Subject: SCHEDULE BOARD STATUS--TUESDAY 4/1/03

This is a snapshot of the schedule boards as of 10:45am:

BROCKTON DIVISION:
*service board closed today(nxt available opening Wednesday 4/2).
*meter board closed today.(nxt available opening Wednesday 4/2).

SPRINGFIELD DIVISION:
*service board closed today.(nxt available opening Wednesday 4/2)
*meter board open today.

LAWRENCE DIVISION:
*service board open today.
*meter board open today.

NEW HAMPSHIRE DIVISION:
*service board open today.
*meter board open today.

MAINE DIVISION:
*meter board open today.

Arthur O'Brien

10/01/2003 11:18 AM

To: Jim Murphy/BSG/Enterprise@NiSource, Bill St.Cyr/BSG/Enterprise@NiSource, Pamela Bellino/BSG/Enterprise@NiSource, Janet D'Entremont/BSG/Enterprise@NiSource, Mike Laghetto/BSG/Enterprise@NiSource, Michael Capeless/BSG/Enterprise@NiSource, Ray Roy/BSG/Enterprise@NiSource, Robert Morin/BSG/Enterprise@NiSource, Robert Lundergan/BSG/Enterprise@NiSource, Paul Rogosienski/BSG/Enterprise@NiSource, Perry Robichaud/BSG/Enterprise@NiSource, Martin Poulin/BSG/Enterprise@NiSource, Alex Petrosino/BSG/Enterprise@NiSource, Ralph Wadman/BSG/Enterprise@NiSource, Pat Teague/BSG/Enterprise@NiSource, Danny Cote/BSG/Enterprise@NiSource

cc:

Subject: STATUS OF SCHEDULE BOARDS

The status of the schedule boards for all locations as of 11am 10/1/03 is as follows:

BROCKTON DIVISION:
*service board closed through 10/24.
*meter board closed through Tuesday 10/7 (out 5 days).

SPRINGFIELD DIVISION:
*service board closed through Tuesday 10/7.
*meter board closed through Monday 10/6 (out 4 days).

LAWRENCE DIVISION:
*service board closed through Monday 10/6.
*meter board closed through Monday 10/6 (out 4 days).

NEW HAMPSHIRE DIVISION:
*service board closed through Monday 10/6.
*meter board closed through Friday 10/3 (out 3 days).

MAINE DIVISION:
*meter board closed through Monday 10/6 (out 4 days).

AO'B

Arthur O'Brien

11/03/2003 11:21 AM

To: Jim Murphy/BSG/Enterprise@NiSource, Bill St.Cyr/BSG/Enterprise@NiSource, Pamela Bellino/BSG/Enterprise@NiSource, Janet D'Entremont/BSG/Enterprise@NiSource, Paul Giguere/BSG/Enterprise@NiSource, Mike Laghetto/BSG/Enterprise@NiSource, Ray Roy/BSG/Enterprise@NiSource, Michael Capeless/BSG/Enterprise@NiSource, Robert Morin/BSG/Enterprise@NiSource, Robert Lundergan/BSG/Enterprise@NiSource, Paul Rogosienski/BSG/Enterprise@NiSource, Perry Robichaud/BSG/Enterprise@NiSource, Marie Walker/BSG/Enterprise@NiSource, Marie Hicks/BSG/Enterprise@NiSource, Martin Poulin/BSG/Enterprise@NiSource, Alex Petrosino/BSG/Enterprise@NiSource, Pat Teague/BSG/Enterprise@NiSource, Ralph Wadman/BSG/Enterprise@NiSource, Danny Cote/BSG/Enterprise@NiSource
cc: BGC - Brockton Service Dispatch, Jeannie Myers/COH/Enterprise@NiSource
Subject: STATUS OF SCHEDULE BOARDS----11/03/03

The status of the schedule boards for all locations as of 11:15am is as follows:

BROCKTON DIVISION:
*service board closed through 11/28
*meter board closed through Friday 11/7 (out 5 days)

SPRINGFIELD DIVISION:
*service board closed through Friday 11/7
*meter board closed through Friday 11/7 (out 5 days)

LAWRENCE DIVISION:
*service board closed through Thursday 11/6
*meter board closed through Thursday 11/6 (out 4 days)

NEW HAMPSHIRE DIVISION:
*service board closed through Thursday 11/6
*meter board closed through Wednesday 11/5 (out 3 days)

MAINE DIVISION:
*meter board closed through Thursday 11/6 (out 4 days)

Arthur O'Brien

12/01/2003 09:40 AM

To: Jim Murphy/BSG/Enterprise@NiSource, Bill St.Cyr/BSG/Enterprise@NiSource, Pamela Bellino/BSG/Enterprise@NiSource, Janet D'Entremont/BSG/Enterprise@NiSource, Paul Giguere/BSG/Enterprise@NiSource, Mike Laghetto/BSG/Enterprise@NiSource, Ray Roy/BSG/Enterprise@NiSource, Michael Capeless/BSG/Enterprise@NiSource, Robert Morin/BSG/Enterprise@NiSource, Robert Lundergan/BSG/Enterprise@NiSource, Paul Rogosienski/BSG/Enterprise@NiSource, Perry Robichaud/BSG/Enterprise@NiSource, Marie Walker/BSG/Enterprise@NiSource, Marie Hicks/BSG/Enterprise@NiSource, Martin Poulin/BSG/Enterprise@NiSource, Alex Petrosino/BSG/Enterprise@NiSource, Pat Teague/BSG/Enterprise@NiSource, Ralph Wadman/BSG/Enterprise@NiSource, Danny Cote/BSG/Enterprise@NiSource
cc: BGC - Brockton Service Dispatch, Jeannie Myers/COH/Enterprise@NiSource
Subject: STATUS OF SCHEDULE BOARDS----12/1/03

The status of the schedule boards for all locations as of 9:30am is as follows:

BROCKTON DIVISION:
*service board closed through 12/26
*meter board closed through Wednesday 12/3 (out 3 days)

SPRINGFIELD DIVISION:
*service board closed through Tuesday 12/2
*meter board closed through Tuesday 12/2 (out 2 days)

LAWRENCE DIVISION:
*service board closed through Tuesday 12/2
*meter board closed through Tuesday 12/2 (out 2 days)

NEW HAMPSHIRE DIVISION:
*service board closed through Tuesday 12/2
*meter board closed through Tuesday 12/2 (out 2 days)

MAINE DIVISION:
*meter board closed through Tuesday 12/2 (out 2 days)

Arthur O'Brien

01/05/2004 02:02 PM

To: Jim Murphy/BSG/Enterprise@NiSource, Bill St.Cyr/BSG/Enterprise@NiSource, Pamela Bellino/BSG/Enterprise@NiSource, Janet D'Entremont/BSG/Enterprise@NiSource, Paul Giguere/BSG/Enterprise@NiSource, Mike Laghetto/BSG/Enterprise@NiSource, Ray Roy/BSG/Enterprise@NiSource, Michael Capeless/BSG/Enterprise@NiSource, Robert Morin/BSG/Enterprise@NiSource, Robert Lundergan/BSG/Enterprise@NiSource, Paul Rogosienski/BSG/Enterprise@NiSource, Perry Robichaud/BSG/Enterprise@NiSource, Marie Walker/BSG/Enterprise@NiSource, Marie Hicks/BSG/Enterprise@NiSource, Martin Poulin/BSG/Enterprise@NiSource, Alex Petrosino/BSG/Enterprise@NiSource, Pat Teague/BSG/Enterprise@NiSource, Ralph Wadman/BSG/Enterprise@NiSource, Danny Cote/BSG/Enterprise@NiSource
cc: BGC - Brockton Service Dispatch, Jeannie Myers/COH/Enterprise@NiSource
Subject: STATUS OF SCHEDULE BOARDS----1/5/04

The status of the schedule boards for all locations as of 2:00pm is as follows:

BROCKTON DIVISION:
*service board closed through Tuesday 1/6
*meter board closed through Tuesday 1/6 (out 2 days)

SPRINGFIELD DIVISION:
*service board open today
*meter board open today

LAWRENCE DIVISION:
*service board open today
*meter board open today

NEW HAMPSHIRE DIVISION:
*service board open today
*meter board open today

MAINE DIVISION:
*meter board open today

Arthur O'Brien

02/02/2004 10:04 AM

To: Jim Murphy/BSG/Enterprise@NiSource, Bill St.Cyr/BSG/Enterprise@NiSource, Pamela Bellino/BSG/Enterprise@NiSource, Janet D'Entremont/BSG/Enterprise@NiSource, Paul Giguere/BSG/Enterprise@NiSource, Mike Laghetto/BSG/Enterprise@NiSource, Ray Roy/BSG/Enterprise@NiSource, Michael Capeless/BSG/Enterprise@NiSource, Robert Morin/BSG/Enterprise@NiSource, Robert Lundergan/BSG/Enterprise@NiSource, Paul Rogosienski/BSG/Enterprise@NiSource, Perry Robichaud/BSG/Enterprise@NiSource, Marie Walker/BSG/Enterprise@NiSource, Marie Hicks/BSG/Enterprise@NiSource, Martin Poulin/BSG/Enterprise@NiSource, Alex Petrosino/BSG/Enterprise@NiSource, Pat Teague/BSG/Enterprise@NiSource, Ralph Wadman/BSG/Enterprise@NiSource, Danny Cote/BSG/Enterprise@NiSource
cc: BGC - Brockton Service Dispatch, Ken Lockhart/COH/Enterprise@NiSource
Subject: STATUS OF SCHEDULE BOARDS ---- 2/2/04

The status of the schedule boards for all locations as of 10am is as follows:

BROCKTON DIVISION:
*service board open today
*meter board open today

SPRINGFIELD DIVISION:
*service board open today
*meter board closed today only (out 1 day)

LAWRENCE DIVISION:
*service board closed today only
*meter board closed today only (out 1 day)

NEW HAMPSHIRE DIVISION:
*service board open today
*meter board open today

MAINE DIVISION:
*meter board closed today only (out 1 day)

Arthur O'Brien

10/01/2004 06:24 PM

To: Bill St.Cyr/BSG/Enterprise@NiSource, Jim Murphy/BSG/Enterprise@NiSource, Pamela Bellino/BSG/Enterprise@NiSource, Janet D'Entremont/BSG/Enterprise@NiSource, Mike Laghetto/BSG/Enterprise@NiSource, Ray Roy/BSG/Enterprise@NiSource, Michael Capeless/BSG/Enterprise@NiSource, John DaSilva/BSG/Enterprise@NiSource, Robert Lundergan/BSG/Enterprise@NiSource, Paul Rogosienski/BSG/Enterprise@NiSource, Richard Bellemare/BSG/Enterprise@NiSource, Perry Robichaud/BSG/Enterprise@NiSource, Alex Petrosino/BSG/Enterprise@NiSource, Martin Poulin/BSG/Enterprise@NiSource, Pat Teague/BSG/Enterprise@NiSource, Marie Walker/BSG/Enterprise@NiSource, Ralph Wadman/BSG/Enterprise@NiSource, Kathy Silver/BSG/Enterprise@NiSource, Danny Cote/BSG/Enterprise@NiSource

cc:

Subject: SCHEDULE BOARD UPDATE

Schedule board update as of Friday 10/1/04:

BROCKTON DIVISION:
The status of the 10 Brockton schedule boards are as follows:
SERVICE BOARD
*Brockton service---- closed through Tuesday 10/5
*Canton service---- closed through Tuesday 10/5
*Hanover service---- closed through Tuesday 10/5
*Taunton service--- closed through Tuesday 10/5
*Wrentham service--- closed through Tuesday 10/5

METER BOARD
*Brockton meter--- closed through Tuesday 10/5
*Canton meter-- closed through Tuesday 10/5
*Hanover meter--- closed through Monday 10/4
*Taunton meter---closed through Tuesday 10/5
*Wrentham meter----closed through Monday 10/4

SPRINGFIELD DIVISION:
The status of the 12 Springfield schedule boards are as follows:
SERVICE BOARD
*Chicopee service-- closed through Tuesday 10/5
*Longmeadow service---closed through Tuesday 10/5
*Ludlow service --- closed through Tuesday 10/5
*Northampton service -- closed through Monday 10/4
*Springfield service --- closed through Tuesday 10/5
*West Springfield service -- closed through Tuesday 10/5

METER BOARD
*Chicopee meter--- closed through Monday 10/4
*Longmeadow meter--closed through Monday 10/4
*Ludlow meter--- closed through Monday 10/4

*Northampton meter--- closed through Tuesday 10/5
*Springfield meter-- closed through Tuesday 10/5
*West Springfield meter-- closed through Tuesday 10/5

LAWRENCE DIVISION:
The status of the 4 Lawrence schedule boards are as follows:
SERVICE BOARD
*North service -- closed through Tuesday 10/5
*South service--- closed through Tuesday 10/5

METER BOARD
*North meter --- closed through Tuesday 10/5
*South meter--- closed through Tuesday 10/5

NEW HAMPSHIRE DIVISION:
The status of the 4 New Hampshire schedule boards are as follows:
SERVICE BOARD
*North service---- open Monday 10/4
*South service--- open Monday 10/4

METER BOARD
*North meter---- open Monday 10/4
*South meter--- open Monday 10/4

MAINE DIVISION:
The status of the 2 Maine schedule boards are as follows:
*Portland meter--- closed through Wednesday 10/6
*Lewiston meter--- closed through Monday 10/4

Arthur O'Brien

11/01/2004 12:53 PM

To: Bill St.Cyr/BSG/Enterprise@NiSource, Jim Murphy/BSG/Enterprise@NiSource, Pamela Bellino/BSG/Enterprise@NiSource, Janet D'Entremont/BSG/Enterprise@NiSource, Mike Laghetto/BSG/Enterprise@NiSource, Ray Roy/BSG/Enterprise@NiSource, Michael Capeless/BSG/Enterprise@NiSource, John DaSilva/BSG/Enterprise@NiSource, Robert Lundergan/BSG/Enterprise@NiSource, Paul Rogosienski/BSG/Enterprise@NiSource, Richard Bellemare/BSG/Enterprise@NiSource, Perry Robichaud/BSG/Enterprise@NiSource, Alex Petrosino/BSG/Enterprise@NiSource, Martin Poulin/BSG/Enterprise@NiSource, Pat Teague/BSG/Enterprise@NiSource, Rita Souza/BSG/Enterprise@NiSource, Marie Walker/BSG/Enterprise@NiSource, Ralph Wadman/BSG/Enterprise@NiSource, Kathy Silver/BSG/Enterprise@NiSource, Danny Cote/BSG/Enterprise@NiSource

cc:

Subject: SCHEDULE BOARD UPDATE--- 11/1/04

Schedule board update as of 11/1/04:

BROCKTON DIVISION:
The status of the 10 Brockton schedule boards are as follows:
SERVICE BOARD:
*Brockton service---- closed through Friday 11/5
*Canton service---- closed through Friday 11/5
*Hanover service---- closed through Friday 11/5
*Taunton service---- closed through Friday 11/5
*Wrentham service---- closed through Friday 11/5

METER BOARD
*Brockton meter--- closed through Wednesday 11/3
*Canton meter--- closed through Wednesday 11/3
*Hanover meter--- closed through Tuesday 11/2
*Taunton meter--- closed through Thursday 11/4
*Wrentham meter--- closed through Tuesday 11/2

SPRINGFIELD DIVISION:
The status of the 12 Springfield schedule boards are as follows:
SERVICE BOARD
*Chicopee service--- closed through Tuesday 11/2
*Longmeadow service---- closed through Tuesday 11/2
*Ludlow service --- closed through Tuesday 11/2
* Northampton service --- open same day
*Springfield service--- closed through Thursday 11/4
*W Springfield service --- open next day

METER BOARD
*Chicopee meter--- open next day

*Longmeadow meter-- closed through Tuesday 11/2
*Ludlow meter--- closed through Tuesday 11/2
*Northampton meter--- closed through Tuesday 11/2
* Springfield meter-- closed through Wednesday 11/3
*W Springfield meter-- closed through Wednesday 11/3

LAWRENCE DIVISION:
The status of the 4 Lawrence schedule boards are as follows:
SERVICE BOARD
*North service--- closed through Friday 11/5
*South service--- closed through Thursday 11/4

METER BOARD
*North meter-- closed through Thursday 11/4
*South meter--- closed through Thursday 11/4

NEW HAMPSHIRE DIVISION:
The status of the 4 New Hampshire schedule boards are as follows:
SERVICE BOARD
*North service --- closed through Friday 11/5
*South service--- closed through Friday 11/5

METER BOARD
*North meter--- closed through Wednesday 11/3
*South meter--- closed through Thursday 11/4

MAINE DIVISION;
The status of the 2 Maine schedule boards are as follows:
METER BOARD
*Portland meter-- closed through Wednesday 11/3
Lewiston meter--- open next day

Arthur O'Brien

12/07/2004 02:12 PM

To: Bill St.Cyr/BSG/Enterprise@NiSource, Jim Murphy/BSG/Enterprise@NiSource, Pamela Bellino/BSG/Enterprise@NiSource, Janet D'Entremont/BSG/Enterprise@NiSource, Mike Laghetto/BSG/Enterprise@NiSource, Ray Roy/BSG/Enterprise@NiSource, Michael Capeless/BSG/Enterprise@NiSource, John DaSilva/BSG/Enterprise@NiSource, Robert Lundergan/BSG/Enterprise@NiSource, Paul Rogosienski/BSG/Enterprise@NiSource, Richard Bellemare/BSG/Enterprise@NiSource, Perry Robichaud/BSG/Enterprise@NiSource, Alex Petrosino/BSG/Enterprise@NiSource, Martin Poulin/BSG/Enterprise@NiSource, Pat Teague/BSG/Enterprise@NiSource, Rita Souza/BSG/Enterprise@NiSource, Marie Walker/BSG/Enterprise@NiSource, Ralph Wadman/BSG/Enterprise@NiSource, Kathy Silver/BSG/Enterprise@NiSource, Danny Cote/BSG/Enterprise@NiSource

cc:

Subject: SCHEDULE BOARD STATUS---12/7/04

BROCKTON DIVISION:
The status of the 10 Brockton schedule boards are as follows:
SERVICE BOARD
*Brockton service--- closed through Wednesday 12/8
*Canton service---- closed through Wednesday 12/8
*Hanover service--- closed through Wednesday 12/8
*Taunton service--- closed through Wednesday 12/8
*Wrentham service--- closed through Wednesday 12/8

METER BOARD
*Brockton meter-- closed through Wednesday 12/8
*Canton meter--- open next day
*Hanover meter--- closed through Wednesday 12/8
*Taunton meter--- closed through Wednesday 12/8
*Wrentham meter---- open next day

SPRINGFIELD DIVISION:
The status of the 12 Springfield schedule boards are as follows:
SERVICE BOARD
*Chicopee service--- open next day
*Longmeadow service--- open same day
*Ludlow service--- open next day
*Northampton service--- open same day
*Springfield service--- open next day
*W Springfield service---- open next day

METER BOARD
*Chicopee meter--- open same day
*Longmeadow meter--- open same day
*Ludlow meter---- open same day
*Northampton meter--- open same day

*Springfield meter--- open next day
*W Springfield meter-- open next day

LAWRENCE DIVISION:
The status of the 4 Lawrence schedule boards are as follows:
SERVICE BOARD
*North service--- open same day
*South service-- open next day

METER BOARD
*North meter--- open next day
*South meter-- open next day

NEW HAMPSHIRE DIVISION:
The status of the 4 New Hampshire schedule boards are as follows:
SERVICE BOARD
*North service--- open same day
*South service--- open same day

METER BOARD
*North meter--- open next day
*South meter-- open next day

MAINE DIVISION
The status of the 2 Maine schedule boards are as follows:
*Portland meter--- closed through Friday 12/10
*Lewiston meter---- open same day

COMMONWEALTH OF MASSACHUSETTS
DEPARTMENT OF TELECOMMUNICATIONS AND ENERGY

RESPONSE OF BAY STATE GAS COMPANY TO THE
SECOND SET OF INFORMATION REQUESTS FROM USWA, AFL-CIO/CLC
D. T. E. 05-27

Date: June 27, 2005

Responsible: Stephen H. Bryant, President

USWA-2-11: For 1999 to date, state the total number of times Guardian Care customers waited at least 24 hours to receive service for a no heat/repair call. Provide annual totals for the years 1999-2005. Additionally, for 1999 to date, provide all documents regarding or relating to service delays for Guardian Care and Rental customers.

Response: The Company does not track the number of times Guardian Care customers waited at least 24 hours to receive service for a no heat/repair call.

Repairs are scheduled according to manpower availability as indicated by the scheduling board. When the Customer Service Representative ("CSR") attempts to schedule a repair order, the next available openings are presented as options to choose from. Guardian Care and Rental customers are given priority over non-contract customers. For Guardian Care and Rental customers, the CSR "overrides" the scheduling board. There is no information available regarding "service delays" for Guardian Care and Rental customers.

The only documents that are available are scheduling updates that were provided on many fall and winter days from 2001-2004. These updates indicate when the next "open" spot on the board would be for a non-Guardian Care and Rental customer. Producing these more or less daily email updates is a burdensome request and would not be responsive because for the most part, they do not have an impact on Guardian Care and Rental Repair scheduling. Attachments USWA-02-11 (a) through USWA-02-11 (q) are representative samples of the first report issued in each month from 2001-2004.

COMMONWEALTH OF MASSACHUSETTS
DEPARTMENT OF TELECOMMUNICATIONS AND ENERGY

RESPONSE OF BAY STATE GAS COMPANY TO THE
SECOND SET OF INFORMATION REQUESTS FROM USWA, AFL-CIO/CLC
D. T. E. 05-27

Date: June 27, 2005

Responsible: Stephen H. Bryant, President

USWA-2-18: For 1999 to date, provide all documents regarding or relating to the Company's policy on referring customers without Guardian Care to outside contractors. Provide the total number of contractor referrals for each year from 1999-2005.

Response: The Company does not have a specific policy regarding referring customers without Guardian Care to outside contractors. The Company informs all customers calling for service, as part of an agreement with the Department of Telecommunications and Energy, that independent contractors provide many of the same services that the Company provides, and that a list of independent contractors is available from the Customer Service Representative that takes the call. The exact language of the recording is presented in MOC-01-14.

There were no records kept regarding the total number of contractor referrals for 1999, 2003 or 2004. From 2000 through April 2002 the Company kept an informal count by having the Customer Service Representatives manually count the number of times they referred a customer to the Service Referral list. There are no reports available for one month in 2000 and two months in 2001. This may or may not mean that there were no referrals in those months. The practice was discontinued in May 2002, so the 2002 totals only include the first four months of the year. The available totals are presented below.

2000 (excluding June)	1,475
2001 (excluding Feb and March)	290
2002 (excluding May-December)	87

COMMONWEALTH OF MASSACHUSETTS
DEPARTMENT OF TELECOMMUNICATIONS AND ENERGY

RESPONSE OF BAY STATE GAS COMPANY TO THE
SECOND SET OF INFORMATION REQUESTS FROM USWA, AFL-CIO/CLC
D. T. E. 05-27

Date: June 27, 2005

Responsible: Stephen H. Bryant, President

USWA-2-24: Provide a copy of the outside contractor list utilized by the Company for repair services.

Response: The list of contractors used for service referrals is provided in MOC-02-07 (g).

COMMONWEALTH OF MASSACHUSETTS
DEPARTMENT OF TELECOMMUNICATIONS AND ENERGY

RESPONSE OF BAY STATE GAS COMPANY TO THE
FIRST SET OF INFORMATION REQUESTS FROM UWUA LOCAL 273
D. T. E. 05-27

Date: June 27, 2005

Responsible: Stephen H. Bryant, President

UWUA-1-9 Please explain how incoming calls are queued at the Springfield call center that handles calls for Bay State and Northern Utilities, including any flow charts or diagrams that explain how calls are directed to emergency handling, direct response by a live customer service rep, directed to interactive voice response, etc. Include in the answer whether incoming calls from Northern versus Bay State customers are segregated in any way, either in terms of which customer service reps handle the calls or which calls are given priority.

To the extent that the protocols governing the processing or handling of calls have changed since January 1, 2002, please explain all such changes.

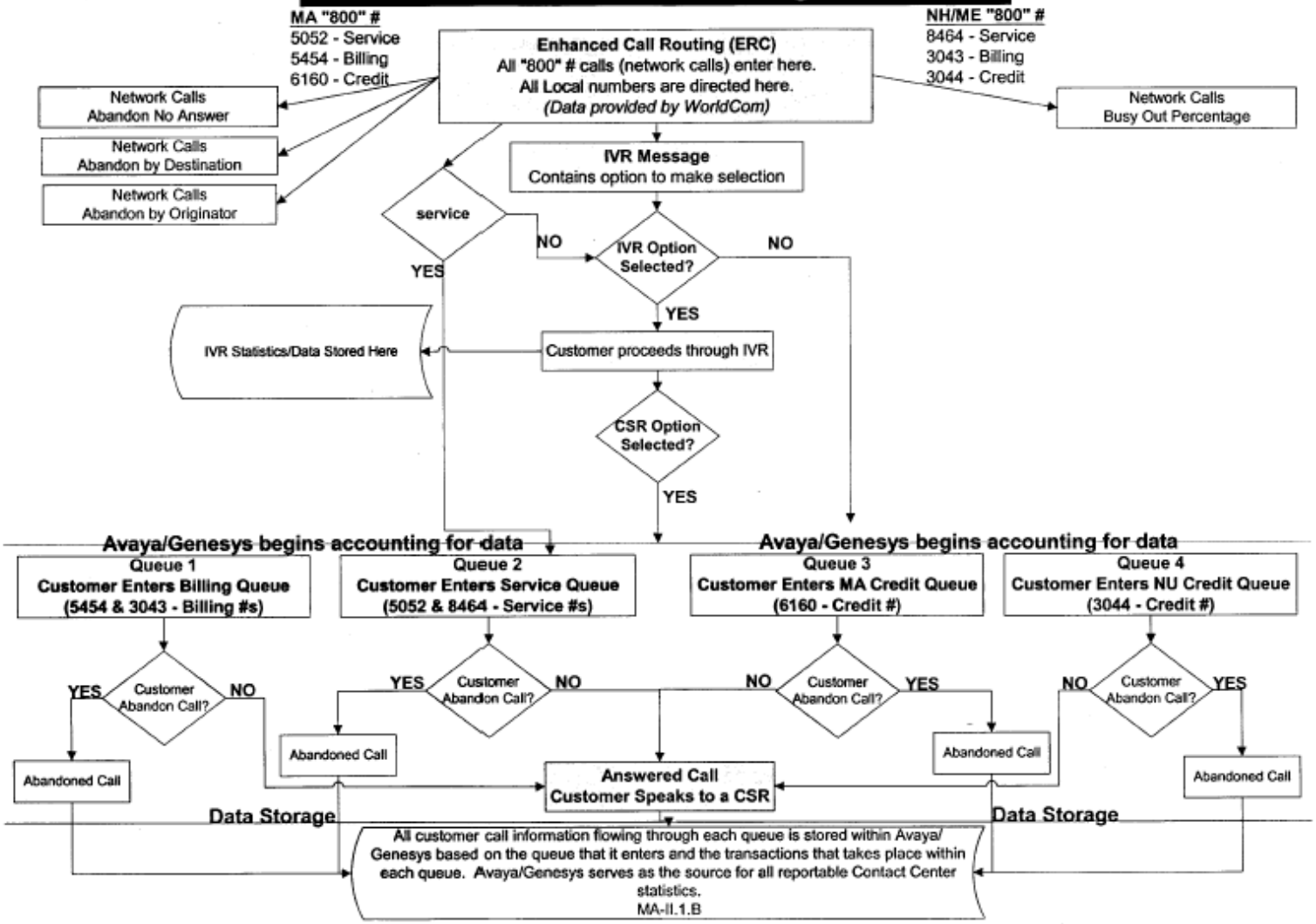
Response: Attachment UWUA-1-9 contains a flow diagram that represents the path an incoming call takes into the Company's Springfield Contact Center. This attachment shows each of the separate 800 numbers that exist for Bay State versus Northern. However, each non-emergency call is generally treated equally as it moves through the call handling process regardless of what jurisdiction it comes in from or what type of call it is. This is made possible by the Company's practice of training Customer Service Representatives ("CSRs") to handle all jurisdictions (i.e., Universal Reps"), which allows for flexibility during heavy call volume times.

Emergency calls for Bay State and Northern share one 800 number that is separate from the customer service numbers as outlined in the attachment. These calls proceed directly to a CSR when the Springfield Contact Center is open and directly to the Company's Brockton Dispatch group during off hours.

The protocols governing the processing or handling of calls continues to evolve in the Contact Center as new technology is introduced, or new techniques are employed. For example, beginning in mid-2002, the Company undertook a number of initiatives to address how calls both enter the Contact Center (i.e., expand the trunk capacity to allow more calls to enter the queue thus reducing busy outs), and are handled once they enter the queue (i.e., undertook a comprehensive analysis of its Integrated Voice Response ("IVR") system resulting in a new menu and improved functionality).

BSG / NUI SQ DATA COLLECTION PROCESS: Customer Call Flow Diagram

MA-II.1.ii.a



COMMONWEALTH OF MASSACHUSETTS
DEPARTMENT OF TELECOMMUNICATIONS AND ENERGY

RESPONSE OF BAY STATE GAS COMPANY TO THE
FIRST SET OF INFORMATION REQUESTS FROM UWUA LOCAL 273
D. T. E. 05-27

Date: June 27, 2005

Responsible: Stephen H. Bryant, President

UWUA-1-12 Please provide a copy of all service quality reports filed with the Department by Bay State in connection with DTE 99-84 and subsequent service quality dockets.

Response: Please see the Company's response to USWA 02-20 for copies of all of Bay State's service quality reports.

COMMONWEALTH OF MASSACHUSETTS
DEPARTMENT OF TELECOMMUNICATIONS AND ENERGY

RESPONSE OF BAY STATE GAS COMPANY TO THE
SECOND SET OF INFORMATION REQUESTS FROM UWUA LOCAL 273
D. T. E. 05-27

Date: June 27, 2005

Responsible: Stephen H. Bryant, President

UWUA-2-13 Please provide the month-by-month statistics for telephone response rate for the Springfield call center for each month of 2003. Include all underlying workpapers as well as any descriptive manuals or protocols that explain how calls are tabulated or logged; how the ultimate figures (% calls answered in 30 seconds) are compiled; and any adjustments made to the raw underlying data. To the extent that telephone response statistics are separately maintained for Bay State versus Northern Utilities customers (that is, not merged into a single report), please provide the information requested both for Bay State and for Northern.

Response: Please see Attachments UWUA-02-13 (a) and UWUA-02-13 (b).

Bay State Gas Company
Call Center SQIs - 2003

Month	Call Center responsibility									
	Call Center - TSF									
	Total	Ans =< 30 sec.	% met - no IVR	IVR volume	% met w/ IVR	YTD (30 sec)	Ans =< 20 sec.	% met - no IVR	% met w/ IVR	YTD (20 sec)
Jan-03	66,714	32,690	49.0%	16,303	59.0%	59.0%	29,354	44.0%	55.0%	55.0%
Feb-03	55,228	16,568	30.0%	18,044	47.2%	53.5%	14,912	27.0%	45.0%	50.3%
Mar-03	58,262	13,983	24.0%	21,999	44.8%	50.6%	12,818	22.0%	43.4%	48.0%
Apr-03	56,501	21,470	38.0%	30,191	59.6%	53.0%	19,210	34.0%	57.0%	50.4%
May-03	63,065	22,703	36.0%	36,272	59.4%	54.5%	20,811	33.0%	57.5%	52.0%
Jun-03	64,236	35,330	55.0%	31526	69.8%	57.3%	32,760	51.0%	67.1%	54.8%
Jul-03	57,368	48,763	85.0%	25033	89.6%	61.7%	46,468	81.0%	86.8%	59.2%
Aug-03	52,126	44,828	86.0%	21659	90.1%	64.8%	43,265	83.0%	88.0%	62.4%
Sep-03	57,799	49,707	86.0%	20446	89.7%	67.4%	48,551	84.0%	88.2%	65.0%
Oct-03	73459	63,909	87.0%	20194	89.8%	69.9%	62,440	85.0%	88.2%	67.6%
Nov-03	51139	45,514	89.0%	17781	91.8%	71.5%	43,980	86.0%	89.6%	69.3%
Dec-03	55574	47,665	85.8%	21433	89.7%	73.0%	46,126	83.0%	87.7%	70.7%
YTD	711,471	443,131	62.3%	280881	73.0%		420,695	59.1%	70.7%	

MA SQI Measure 01 – TSF/Non-Emergency Calls
Data Collection/Reporting Process - Summary Sheet

State: Massachusetts

SQ Measure Description: 69.9 % Telephone Calls Answered within 30 Seconds, including the Billing, Service and Credit Lines (also referred to as Telephone Service Factor or "TSF"). In addition, measure and report the TSF of these same calls answered within 20 seconds.

SQ Manual Cross Ref. #: MA-II.1.A

Managing Employee: Pat Teague, Manager Springfield Contact Center

Definition: The Springfield Contact Center shall answer all non-emergency telephone calls coming in on the following telephone numbers within 30 seconds

- Billing: 800-882-5454, 800-552-3043, 978-687-1663, 413-731-7668, 413-586-7298;
- Service: 800-677-5052, 800-552-8464, 978-685-6382, 413-781-3610, 413-586-2400;
- Credit Lines: 800-688-6160, 800-552-3044, 413-731-7883.

TSF shall be measured beginning at the point that the caller makes a service selection and ending at the point that the call is responded to by the service area selected by the caller. If the caller does not make a selection, the response time shall be measured from a point following the completion of the Company's recorded menu options and ending at the point that a customer-service representative responds to the call.

Source of Requirement: Bay State Gas Company's Service Quality Plan filed on May 31, 2002, in compliance with the MA Department of Telecommunications and Energy's ("DTE") Letter Order issued May 28, 2002 in Docket D.T.E. 99-84.

Reporting Requirements: TSF Non-Emergency Telephone Call data shall be compiled and aggregated monthly. Reporting by the Company shall occur annually, with the report due to the DTE by March 1 for the prior calendar year's activity.

Source Data:

• Responsible Department(s): Nisource Performance Management Group *(Contact Center Support Group)* and the Springfield Contact Center

• Formula:

(Total Calls in each of the four respective queues answered within 30 seconds (Springfield) + Total Calls in each of the four respected queues abandoned within 30 seconds *divided by the* total calls offered in each of the four respective queues in Springfield.

Formula: (A + B)/ C = D
Note: Springfield abandoned calls are automatically calculated.

• Process To Capture/Organize Data:

1. All customer calls, whether they originated from local or 800 numbers, are directed to our Enhanced Call Routing system (provided by WorldCom);
2. Customer calls will then receive an IVR or non IVR related (service calls) message;
3. Based on the whether or not the customer selects an IVR option or selects to speak to a Customer Service Representative ("CSR"), the customer call will route to the appropriate place;
4. Only when the customer selects to speak to a CSR, does that call exit the IVR and proceed into the appropriate queue;
5. At the point the call enters the appropriate queue, which is determined by the number they dial, Contact Center statistics begin to accumulate within Avaya & Genesys, which are the hardware/software systems the Company uses to measure and track TSF statistics;
6. One output document the Company uses for TSF statistics is the source of Contact Center information (this is a Avaya generated report called "name to be determined").
7. Contact Center information provided in this document includes: Bay State Gas' three queues (Billing, Service & Credit); Calculated Service Level at 30 seconds

(MA-II.1.A);Call Volume (Offered, Answered and Abandoned); Average Speed of Answer; Average Time to Abandon; Total calls answered and abandoned within certain thresholds; and Percent of calls answered within certain thresholds
8. Contact Center monthly results are entered into the Contact Center SQI document, which is linked to a final Bay State Gas reporting document.

COMMONWEALTH OF MASSACHUSETTS
DEPARTMENT OF TELECOMMUNICATIONS AND ENERGY

RESPONSE OF BAY STATE GAS COMPANY TO THE
THIRD SET OF INFORMATION REQUESTS FROM UWUA LOCAL 273
D. T. E. 05-27

Date: June xx, 2005

Responsible: Joseph A. Ferro

UWUA-3-29 (Sched. JES-4) (a) What is Customer "R&C" Shut-off Turn-off?

(b) Does the company collect any fees or charges for terminating or restoring service to residential customers? If so, list the amount of all such charges.

(c) Does the company collect "late payment" charges from residential customers? If so, list the amount of all such charges.

Response:

(a) Customer "R&C Shut-off Turn-off" is "Customer Records and Collections Expenses." This includes the fees for reactivating accounts after turn-off for non-payment.

(b) A Schedule of Administrative Fees and Charges is provided in the Company's tariff on M.D.T.E. No. 2, Sheet No. 65. The account reactivation fees are currently $15.00 for service provided between the hours of 8am and 3pm and $20.00 for weekend, holiday and after hours.

(c) A Schedule of Administrative Fees and Charges is provided in the Company's tariff on M.D.T.E. No. 2, Sheet No. 65. The late payment fee is based upon the variable interest rate and is determined annually in accordance with MDTE Regulations at 220 C.M.R. 26.00 and becomes effective each year with February bills.